

## **TABLE OF CONTENTS OF SPECIAL PROVISIONS**

Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

## Table of Contents

TABLE OF CONTENTS OF SPECIAL PROVISIONS.....	5
CONTRACT TIME AND LIQUIDATED DAMAGES.....	6
NOTICE TO CONTRACTOR - 100 YEAR FLOOD BOUNDARY.....	10
NOTICE TO CONTRACTOR - CLEANING OF CATCH BASINS, PIPES.....	11
AND OUTLETS .....	11
NOTICE TO CONTRACTOR - PRE-BID QUESTIONS AND ANSWERS.....	12
NOTICE TO CONTRACTOR - UTILITY SPECIFICATIONS.....	13
NOTICE TO CONTRACTOR – COORDINATION WITH UTILITY .....	14
COMPANIES.....	14
NOTICE TO CONTRACTOR – ENVIRONMENTAL INVESTIGATIONS .....	16
NOTICE TO CONTRACTOR – EXISTING IMS .....	18
NOTICE TO CONTRACTOR – HISTORICAL GUIDELINES FOR THE .....	19
MERRITT PARKWAY BRIDGES .....	19
NOTICE TO CONTRACTOR - PORTLAND CEMENT CONCRETE (PCC) .....	21
MIX CLASSIFICATIONS.....	21
NOTICE TO CONTRACTOR - UNANTICIPATED DISCOVERY OF .....	22
CULTURAL RESOURCES.....	22
NOTICE TO CONTRACTOR – SIGNING .....	23
NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS) .....	24
COORDINATES FOR SIGNS .....	24
NOTICE TO CONTRACTOR – SITE NUMBER/BRIDGE NUMBER .....	25
CROSS REFERENCE .....	25
NOTICE TO CONTRACTOR - COMPASS SUBMITTALS.....	26
NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS (Davis Bacon .....	27
Act) .....	27
NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE .....	28
UTILITY WORK SCHEDULE .....	29
NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE .....	30
STRENGTH.....	30
NOTICE TO CONTRACTOR - ARCHITECTURAL AND INDUSTRIAL .....	31
MAINTENANCE COATINGS .....	31
NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS.....	34
NOTICE TO CONTRACTOR - FORM 818 ARTICLE 1.05.19 – FIELD .....	35
ERECTOR PREQUALIFICATION.....	35
NOTICE TO CONTRACTOR - 9.49 – FURNISHING, PLANTING AND .....	36
MULCHING TREES, SHRUBS, VINES AND GROUND COVER PLANTS.....	36
NOTICE TO CONTRACTOR - ENVIRONMENTAL INVESTIGATIONS.....	37
NOTICE TO CONTRACTOR - ELECTRONIC ENGINEERING DATA .....	39
(EED) .....	39
NOTICE TO CONTRACTOR – SECTION 1.05 - CONTROL OF THE .....	40
WORK.....	40
NOTICE TO CONTRACTOR - QUALITY CONTROL PROGRAM.....	41
NOTICE TO CONTRACTOR - EQUIPMENT OPERATION AND .....	42
PROTECTION.....	42
SECTION 1.02 - PROPOSAL REQUIREMENTS AND CONDITIONS .....	43
SECTION 1.05 - CONTROL OF THE WORK .....	44
SECTION 1.07 – LEGAL RELATIONS AND RESPONSIBILITIES.....	49
SECTION 1.08 - PROSECUTION AND PROGRESS.....	50
SECTION 1.10 - ENVIRONMENTAL COMPLIANCE .....	55
SECTION 6.03 - STRUCTURAL STEEL.....	57
SECTION 9.49 – FURNISHING, PLANTING AND MULCHING .....	58
TREES, SHRUBS, VINES AND GROUND COVER PLANTS .....	58



SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING .....	60
ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT: .....	62
D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR.....	66
MANUFACTURERS.....	66
ITEM #0100502A – SURVEY GRADE GPS UNIT.....	78
ITEM #0100602A – WORK AREA ACCESS.....	82
ITEM #0101000A - ENVIRONMENTAL HEALTH AND SAFETY .....	86
ITEM #0101117A - CONTROLLED MATERIALS HANDLING.....	95
ITEM #0201001A – CLEARING AND GRUBBING .....	102
ITEM #0202100A - ROCK EXCAVATION.....	103
ITEM #0202130A - SCARIFY BLASTING DRILL HOLES .....	109
ITEM #0202216A – EXCAVATION AND REUSE OF EXISTING .....	110
CHANNEL BOTTOM MATERIAL.....	110
ITEM #0202217A – SUPPLEMENTAL STREAMBED CHANNEL MATERIAL.....	113
ITEM #0202315A - DISPOSAL OF CONTROLLED MATERIALS .....	115
ITEM #0202503A – REMOVAL OF CONCRETE CURB .....	121
ITEM #0204001A – COFFERDAM AND DEWATERING.....	122
ITEM #0204139A – COFFERDAM MATERIAL LEFT IN PLACE .....	124
ITEM #0204151A - HANDLING WATER.....	125
ITEM #0210200A – TEMPORARY SLOPE PROTECTION.....	126
ITEM #0404101A – BITUMINOUS CONCRETE PATCHING - PARTIAL.....	127
DEPTH.....	127
ITEM # 0406125A – BITUMINOUS CONCRETE SURFACE PATCH .....	129
ITEM #0406195A – FILLING JOINTS AND CRACKS IN BITUMINOUS .....	132
CONCRETE PAVEMENT .....	132
ITEM #0406314A – 80 MIL PAVEMENT MARKING GROOVE 5” WIDE .....	137
ITEM #0406315A – 80 MIL PAVEMENT MARKING GROOVE 7” WIDE .....	137
ITEM #0406316A – 80 MIL PAVEMENT MARKING GROOVE 9” WIDE .....	137
ITEM #0406995A - ILLUMINATION FOR NIGHT CONCRETE SLIP .....	140
FORMING (MOBILE) .....	140
ITEM #0406999A - ASPHALT ADJUSTMENT COST.....	143
ITEM #0503251A – CLEAN HISTORIC CONCRETE BRIDGE (SITE NO.2) .....	145
ITEM #0503252A - CLEAN HISTORIC CONCRETE BRIDGE (SITE NO. 3) .....	145
ITEM #0503253A - CLEAN HISTORIC CONCRETE BRIDGE (SITE NO. 4) .....	145
ITEM #0503307A – RESTORATION OF METAL FEATURES .....	150
ITEM #0520041A - PREFORMED JOINT SEAL.....	153
ITEM #0601109A - PRECAST CONCRETE WALLS.....	156
ITEM #0601125A – PRECAST CONCRETE BOX CULVERT.....	162
ITEM #0601192A – SURFACE PATCH.....	167
ITEM #0601318A - PARTIAL DEPTH PATCH.....	168
ITEM #0601426A – CLASS “S” CONCRETE FOR HISTORIC BRIDGES.....	175
ITEM #0601886A - RESTORATION OF ORNAMENTAL HISTORIC .....	183
CONCRETE .....	183
ITEM #0601890A – COLOR-MATCHED STAIN FOR CONCRETE .....	186
ITEM #0601895A – REMOVAL OF GRAFFITI FROM HISTORIC.....	188
CONCRETE .....	188
ITEM #0601988A - TESTING AND ANALYSIS OF HISTORIC .....	191
CONCRETE .....	191
ITEM #0602901A - DRILLING HOLES AND GROUTING DOWELS.....	197
ITEM #0602980A - CLEAN AND COAT EXPOSED REINFORCING STEEL.....	199
ITEM #0603475A - STRUCTURAL STEEL SIGN SUPPORT (PAINTED) .....	202
ITEM #0603726A - EMBEDDED GALVANIC ANODES .....	207
ITEM #0707009A - MEMBRANE WATERPROOFING (COLD LIQUID .....	211

ELASTOMERIC\)	211
ITEM #0712010A - REINFORCED SOIL SLOPE	218
ITEM #0811014A – MERRITT PARKWAY CONCRETE CURBING	224
ITEM #0821012A – MERRITT PARKWAY MEDIAN BARRIER	225
ITEM #0821019A – MERRITT PARKWAY BARRIER	226
ITEM #0821995A – PRECAST CONCRETE ENDBLOCK	228
ITEM #0822002A – RELOCATED TEMPORARY PRECAST CONCRETE	235
BARRIER CURB	235
ITEM #0904050A – TWO TUBE RETROFIT BRIDGE RAIL	236
ITEM #0910051A - MERRITT PARKWAY MEDIAN GUIDERAIL	238
ITEM #0910052A - MERRITT PARKWAY GUIDERAIL	238
ITEM #0910053A - MERRITT PARKWAY GUIDERAIL REPLACEMENT	238
PARTS	238
ITEM #0910054A - MERRITT PARKWAY GUIDERAIL (SYSTEM 2)	238
ITEM #0910055A - MERRITT PARKWAY GUIDERAIL (SYSTEM 3)	238
ITEM #0912104A - DRILLING HOLE FOR GUIDERAIL POST	238
ITEM #0910058A - MERRITT PARKWAY GUIDERAIL LEADING END	238
ATTACHMENT	238
ITEM #0910059A - MERRITT PARKWAY GUIDERAIL TRAILING END	238
ATTACHMENT	238
ITEM #0911476A - MERRITT PARKWAY GUIDERAIL END	242
ANCHORAGE-TYPE I	242
ITEM #0911477A - MERRITT PARKWAY GUIDERAIL END	242
ANCHORAGE-TYPE II	242
ITEM #0913043A – 8' POLYVINYL CHLORIDE CHAIN LINK FENCE	244
ITEM #0915003A - TREE ROOT PROTECTION	249
ITEM # 0917010A – REPAIR GUIDERAIL	250
ITEM #0939001A – SWEEPING FOR DUST CONTROL	252
ITEM #0944000A – TOPSOIL	253
ITEM #0944105A – STRUCTURAL SOIL	254
ITEM #0949017A - FURNISHINGAND INSTALLING LARGE CALIPER	256
TREES	256
ITEM #0949111A - PROTECTIVE FENCING	258
ITEM #0949432.11A – PNEUMATIC ROOT EXCAVATION	260
ITEM #0949432A - ROOT PRUNING	263
ITEM #0950021A – LOW GROW TURF	264
ITEM #0950040A – CONSERVATION SEEDING FOR SLOPES	266
ITEM #0950043A - WETLAND GRASS ESTABLISHMENT	268
ITEM #0950106A – TREE BARRIER	270
ITEM #0952001A – SELECTIVE CLEARING AND THINNING (LUMP	271
SUM)	271
ITEM #0952049A – SELECTIVE CLEARING AND THINNING	272
ITEM #0952051A – CONTROL AND REMOVAL OF INVASIVE	274
VEGETATION	274
ITEM #0969030A - PROJECT COORDINATOR (MINIMUM BID)	280
ITEM #0969049A – DOCUMENT CONTROL SPECIALIST	286
ITEM #0969054A - CONTRACTOR QUALITY CONTROL PROGRAM	293
LEVEL 1	293
ITEM #0969066A - CONSTRUCTION FIELD OFFICE, EXTRA LARGE	301
ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC	309
ITEM #0974052 – REMOVAL OF EXISTING MASONRY – LIMITED	349
METHODS	349
ITEM #1118101A – TEMPORARY SIGNALIZATION	350

ITEM #1206036A – REMOVE AND RELOCATE SIGN .....352

ITEM #1206036A – REMOVE AND RELOCATE SIGN .....354

ITEM #1206097A –RELOCATION OF EXISTING SIGNING .....356

ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX .....358

RETROREFLECTIVE SHEETING) .....358

ITEM #1806226A – PRE-WARNING VEHICLE .....360

PERMITS AND/OR REQUIRED PROVISIONS .....361

**AUGUST 19, 2020**  
**FEDERAL AID PROJECT NO. 0015(145)**  
**STATE PROJECT NO. X0102-0368**

**ROUTE 15 SAFETY IMPROVEMENTS , RESURFACING,**  
**ENHANCEMENTS AND BRIDGE IMPROVEMENTS**

**Towns of Norwalk and Westport**  
**Federal Aid Project No. 0015(145)**

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020, is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 818 is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362>. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=2288&q=259258>. The Special Provisions relate in particular to the Route 15 Safety Improvements, Resurfacing, Enhancements and Bridge Improvements in the Towns of Norwalk and Westport.

**CONTRACT TIME AND LIQUIDATED DAMAGES**

In order to minimize the hazard, cost and inconvenience to the traveling public and pollution of the environment, it is necessary to limit the time of construction work, which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

There will be two assessments for liquidated damages and they will be addressed in the following manner:

1. For this contract, an assessment per day for liquidated damages, at a rate of Three Thousand Seven Hundred Dollars (\$3,700.00) per day shall be applied to each calendar day the work runs in excess of the Four Hundred Seventy Nine (479) allowed calendar days for the contract.
2. For this contract, an assessment per hour for liquidated damages shall be applied to each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours given in Article 1.08.04 of the Special Provisions. The liquidated damages shall be as shown in the following tables entitled "Liquidated Damages Per Hour" for each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours.

For the purpose of administering this contract, normal traffic operations are considered interfered with when:

1. Any portion of the travel lanes or shoulders is occupied by any personnel, equipment, materials, or supplies including signs.
2. The transition between the planes of pavement surfaces is at a rate of one inch in less than fifteen feet longitudinally.

**LIQUIDATED DAMAGES PER HOUR**

Route 15 NB Exit 34 (Rte. 104) Off-Ramp to Exit 39A (US 7) Off-Ramp 2 Through Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	\$ 500
2nd Hour of Restrictive Period	\$ 500
3rd Hour or any Subsequent Hour of Restrictive Period	\$ 3,000

Route 15 NB Exit 39A (US 7) Off-Ramp to North Project Limit 2 Through Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	\$ 500
2nd Hour of Restrictive Period	\$ 500
3rd Hour or any Subsequent Hour of Restrictive Period	\$ 500

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “0”, “S” or “1”.

The above liquidated damages shall be applied when the actual number of lanes closed exceeds the number of lanes allowed to be closed, as dictated in the Limitation of Operations Chart.

If all available shoulder widths or gore areas are not available to traffic for each hour designated with a “0” on the Limitation of Operations Charts, then liquidated damages of \$500 shall apply for each hour, or part thereof

**LIQUIDATED DAMAGES PER HOUR**

Route 15 SB Fairfield/Trumbull Town Line to Exit 41 (Rte. 33) Off-Ramp 2 Through Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	\$ 10,000
2nd Hour of Restrictive Period	\$ 30,000
3rd Hour or any Subsequent Hour of Restrictive Period	\$ 45,000

Route 15 SB Exit 41 (Rte. 33) Off-Ramp to Southern Project Limit 2 Through Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	\$ 35,000
2nd Hour of Restrictive Period	\$ 70,000
3rd Hour or any Subsequent Hour of Restrictive Period	\$ 80,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “0”, “S” or “1”.

The above liquidated damages shall be applied when the actual number of lanes closed exceeds the number of lanes allowed to be closed, as dictated in the Limitation of Operations Chart.

If all available shoulder widths or gore areas are not available to traffic for each hour designated with a “0” on the Limitation of Operations Charts, then liquidated damages of \$500 shall apply for each hour, or part thereof

## **NOTICE TO CONTRACTOR - 100 YEAR FLOOD BOUNDARY**

The Contractor shall not park or store any materials or equipment within the 100-year flood boundary as depicted on the plans.



## **NOTICE TO CONTRACTOR - CLEANING OF CATCH BASINS, PIPES AND OUTLETS**

All existing drainage structures and drainage pipes (including outlets) within the project limits shall be cleaned as outlined in the stage construction plans and in accordance with the Department of Transportation Standard Specifications form 818 as supplemented.

Prior to any work for cleaning of catch basins, pipes and outlets the Contractor, through the Engineer, must contact the District Drainage Engineer and report all activities at each location and understand the requirements and restrictions as outlined in the project specific regulatory permits.

Material shall be disposed of in accordance with the Item #0020763A "Disposal of Sediments".

## **NOTICE TO CONTRACTOR - PRE-BID QUESTIONS AND ANSWERS**

Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 9:00 am Monday (i.e. typical Wednesday Bid Opening) the project(s) being bid will be closed for questions, at which time questions can no longer be submitted through the Q and A Website.**

**Answers may be provided by the Department up to 12:00 noon, the day before the bid. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.**

If a question needs to be asked the day before the bid date, please contact the Contracts Unit staff and email your question to [dotcontracts@ct.gov](mailto:dotcontracts@ct.gov) immediately.

Contractors must identify their company name, contact person, contact email address and phone number when asking a question. The email address and phone number will not be made public.

The questions and answers (if any) located on the Q and A Website are hereby made part of the bid/contract solicitation documents (located on the State Contracting Portal), and resulting contract for the subject project(s). It is the bidder's responsibility to monitor, review, and become familiar with the questions and answers, as with all bid requirements and contract documents, prior to bidding. By signing the bid proposal and resulting contract, the bidder acknowledges receipt of, and agrees to the incorporation of the final list of Q and A, into the contract document.

Contractors will not be permitted to file a future claim based on lack of receipt, or knowledge of the questions and answers associated with a project. All bidding requirements and project information, including but not limited to contract plans, specifications, addenda, Q and A, Notice to Contractors, etc., are made public on the State Contracting Portal and/or the CTDOT website.

## **NOTICE TO CONTRACTOR - UTILITY SPECIFICATIONS**

The contractor is hereby notified that all utility specifications contained elsewhere herein shall be made a part of this contract, and that the contractor shall be bound to comply with all requirements of such specifications. The requirements and conditions set forth in the subject specifications shall be binding on the contractor just as any other specification would be.

## **NOTICE TO CONTRACTOR – COORDINATION WITH UTILITY COMPANIES**

Existing utilities shall be maintained during construction. The Contractor shall verify the location of underground and overhead utilities. Construction work within the vicinity of utilities shall be in accordance with current safety regulations.

Utility relocation work, by others, is required within the project limits. The Contractor shall schedule their operations in such a manner as to minimize interference with utility relocation/protection activities. There are utility relocations for aerial utilities. The proposed pole locations are shown on the utility plan for informational purposes only and are subject to change.

The Contractor is hereby notified that the utility work schedules will have to be accommodated prior to proceeding. The Contractor shall coordinate with utility companies to accommodate their schedule with all utility company schedules. This includes but is not limited to providing access, staging and sequencing prior to proceeding. Any inconvenience or delay that may result from utility company work shall be included in the contract bid for the work. The work to repair or replace any damage to utilities caused by the Contractor's operations will be solely at the Contractor's expense, in accordance with Form 818, Section 1.07.

As required by State Law, the Contractor shall contact "Call Before You Dig". Telephone 1-800-922-4455 for the location of public underground facilities in accordance with Section 16-345 of the Regulations of the Department of Public Utility Control. The underground activities should be clearly delineated within all areas of proposed excavation prior to performing actual excavation. The notification to "Call Before You Dig" must be made at least 48 hours in advance.

Contractors are cautioned that it is their responsibility to verify locations, conditions and field dimensions of all existing features, as actual conditions may differ from information shown on the plans or continued elsewhere in the specifications.

In order to expedite utility relocation work, the Contractor shall set priorities in performing clearing and grubbing operations as described in item #0201001A in areas where overhead utility relocation is proposed. Prior to setting of the utility poles, the Contractor shall place fill or excavate to within 6 inches of finished grade, as required, in areas where utility poles are to be relocated.

Pole relocation, cable splicing and removed is required and involves Eversource Energy, Frontier and Cablevision.

Utility Company Contacts:

**The Southern New England Telephone Company dba Frontier Communications of Connecticut**

Ms. Lynne DeLucia,  
Manager - Engineering & Construction  
1441 North Colony Road  
Meriden, CT 06450-4101  
PHONE: (203) 238-5000 EXT: Mobile: 860-967-4389  
E-MAIL: [Lynne.m.delucia@ftr.com](mailto:Lynne.m.delucia@ftr.com)

**The Connecticut Light & Power Company dba Eversource Energy - Electric Distribution**

Mr. James Deacon,  
Supervisor - Construction Engineering  
P.O. Box 270 - 410 Sheldon Street  
Hartford, CT 06141-0270  
PHONE: (860) 280-2466 EXT: Mobile:  
E-MAIL: [james.deacon@eversource.com](mailto:james.deacon@eversource.com)

**City of Norwalk Department of Public Works**

Mr. Anthony R. Carr, P.E.,  
Chief of Operations and Public Works  
125 East Avenue  
Norwalk, CT 06851  
PHONE: (203) 854-7792 EXT: Mobile:  
E-MAIL: [acarr@norwalkct.org](mailto:acarr@norwalkct.org)

**City of Norwalk First District Water Department**

Mr. Anthony Franceschini  
Operations Director  
12 New Canaan Avenue - P.O. Box 27  
Norwalk, CT 06852-0027  
PHONE: (203) 847-7387 Ext. 7270  
E-MAIL: [AFranceschini@firstdistrictwater.org](mailto:AFranceschini@firstdistrictwater.org)

## **NOTICE TO CONTRACTOR – ENVIRONMENTAL INVESTIGATIONS**

A Task 210 Subsurface Site Investigation for the Merritt Parkway Improvements Project, consisting of State Projects 102-269 and 102-368, was conducted to evaluate soil quality along a 6.5 mile stretch of both the northbound and southbound lanes between New Canaan and Westport, Connecticut. The information presented herein represents the findings of the investigation pertaining solely to Project 102-368, which encompasses the section of the Merritt Parkway extending from the bridge spanning Main Avenue in Norwalk to Newtown Turnpike in Westport.

As indicated in the Task 210 report, low-level concentrations of extractable total petroleum hydrocarbons (ETPH), polycyclic aromatic hydrocarbons (PAHs), and chlorinated pesticides (DDT, DDD, and/or DDE) were detected in the soils. The reported ETPH and PAH concentrations were all below the Residential Direct Exposure Criteria (RES DEC) and/or GA Pollutant Mobility Criteria (PMC) of the Connecticut Remediation Standard Regulations (RSRs). Currently, there are no promulgated criteria for the detected pesticides; however, the reported concentrations of one or more of the pesticides in most of the samples exceeded the GA PMC presented in the Connecticut Department of Energy and Environmental Protection's (CTDEEP's) document titled "Request for Approval of Criteria for Additional Polluting Substances and Certain Alternative Criteria." Additionally, several RCRA metals were detected in all the samples, with arsenic and lead concentrations exceeding their respective RES DEC in several instances. Further, several samples yielded leachable lead above the GA PMC.

The results of the investigation, while indicating the presence of one or more constituents of concern throughout the Project above regulatory criteria, are likely reflective of typical roadway background conditions and are generally below RSR cleanup criteria. Therefore, when possible, excavated soils shall be reused on the Project unless deemed unsuitable by the Engineer due to physical indications of contamination or the geotechnical characteristics of the material. Excavated material deemed unsuitable or surplus, excluding existing pavement structure (asphalt and subbase), rock, ledge, and concrete, shall be designated as Controlled Materials and transported to the existing temporary waste stockpile area (WSA). Excavated material that is suitable for reuse shall be managed at the point of origin for use as backfill. In instances where such material cannot be reused directly at the point of origin or within several days of excavation, the material shall be managed, in a manner approved by the Engineer, to minimize generation of fugitive dust and erosion, and prevent physical interference with other Project activities.

The location and route to the WSA are depicted on Drawings ENV-02 and ENV-03 in the Project Plans, respectively. Material that has been designated as Controlled Materials will not be reusable as backfill unless authorized by the Engineer in writing and shall be managed in accordance with *Item 0101117A - Controlled Materials Handling*. The Controlled Materials staged in the WSA will require disposal at an approved treatment/recycling/disposal facility in accordance with *Item No. 0202315A - Disposal of Controlled Materials*.

Groundwater was not encountered during the Subsurface Site Investigation. However, in the event groundwater is encountered during construction, any dewatering associated with the construction

shall be performed in accordance with CTDEEP's "*General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities.*"

The Contractor is hereby notified that Controlled Materials requiring special management and/or disposal procedures may be encountered during various construction activities conducted within the Project Limits. Therefore, the Contractor will be required to implement appropriate health and safety measures for all construction activities to be performed within the areas of excavation within the Project Limits, and during management of Controlled Materials. These measures may include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination, and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Sections which shall be reviewed by the Contractor include the following:

- Item No. 0101000A – Environmental Health and Safety
- Item No. 0101117A – Controlled Materials Handling
- Item No. 0202315A – Disposal of Controlled Materials

The Contractor is alerted to the fact that a Department environmental consultant will be on-site periodically during construction operations to observe site conditions for the State.

Information pertaining to the results of the environmental investigation can be found in the document listed below and shall be available for review on the Project portal in ProjectWise. The results contained in the environmental investigation report listed below show levels of various contaminants that the Contractor may encounter during construction. Actual levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed as non-hazardous at one or more of the disposal facilities listed in *Item No. 0202315A - Disposal of Controlled Materials*.

- Task 210 Subsurface Site Investigation Report, Merritt Parkway, New Canaan-Norwalk-Westport, Connecticut, ConnDOT Project Numbers: 102-296/102-368. TRC, May 2020.

## **NOTICE TO CONTRACTOR – EXISTING IMS**

The Contractor is herein made aware of existing Incident Management System (IMS) conduit, Variable Message Sign, and appurtenances located on Route 15 in the vicinity of the project area.

The Contractor will be responsible for locating, verifying the location of and protecting all of the IMS below and above the ground. Prior to the start of construction, the Contractor shall contact “Call Before You Dig” and all utility within the towns along the project corridor. The Contractor shall also contact Robert Kennedy (860-594-3458) of ConnDOT Highway Operations at to mark out IMS conduit and appurtenances.

Any damage caused to the IMS conduit/equipment will be the responsibility of the Contractor, for repair of damage caused by the Contractor or the Contractor’s Sub-Contractor.



## **NOTICE TO CONTRACTOR – HISTORICAL GUIDELINES FOR THE MERRITT PARKWAY BRIDGES**

### Informational Overview: Historical Significance of the Merritt Parkway Bridges

The Merritt Parkway and its bridges were named to the National Register of Historic Places in 1991. One of the outcomes of this designation was the development of the “Merritt Parkway Bridge Restoration Guide” completed in 2002 as part of the “Conservation and Restoration Plan” for the Parkway. The “Guide” provides a “Restoration Philosophy” for the bridges, as well as an “Existing Conditions Evaluation”, and “Restoration Guidelines”. The Restoration Guidelines include Intent, Criteria, and Priority for Restoration, Materials and Restoration Techniques, and Guideline Specifications. The Guideline Specifications, and the Merritt Parkway Bridge Restoration Guide as a whole, were used to develop the cleaning, testing, graffiti removal, and concrete repair and restoration specifications of this project.

The rehabilitation language of the Guide was in part developed based on the Secretary of the Interior’s “Standards for Rehabilitation” which state:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

## **NOTICE TO CONTRACTOR - PORTLAND CEMENT CONCRETE (PCC) MIX CLASSIFICATIONS**

### ***SECTIONS 6.01 and M.03 MIX CLASSIFICATION EQUIVALENCY***

Sections 6.01 *Concrete for Structures* and M.03 *Portland Cement Concrete* have been revised to reflect changes to item names and nomenclature for standard Portland cement concrete (PCC) mix classifications. Special Provisions, plan sheets and select pay items in this Contract may not reflect this change. Refer to the Concrete Mix Classification Equivalency Table below to associate the Concrete Mix Classifications with Former Mix Classifications that may be present elsewhere in the Contract.

**Concrete Mix Classification Equivalency Table**

New Mix Classification (Class PCCXXXYZ <sup>1</sup> )	Former Mix Classification
Class PCC03340	Class "A"
Class PCC03360	Class "C"
Class PCC04460 <sup>2</sup>	Class "F"
Class PCC04462 <sup>2</sup>	High Performance Concrete
Class PCC04481, PCC05581	Class "S"

Table Notes:

1. See Table M.03.02-1, Standard Portland Cement Concrete Mixes, for the new Mix Classification naming convention.
2. Class PCC04462 (formerly Class "HP1" Concrete; also called low permeability concrete) is to be used for the following cast-in-place bridge components: decks, bridge sidewalks, and bridge parapets.

Where called for in the Contract, **Low Permeability Concrete** shall be used, as specified in Sections 6.01 and M.03. Please pay special attention to the requirements for Class PCC04462, including:

- Submittal of a mix design developed by the Contractor and a concrete supplier **at least 90 days prior to placing the concrete**
- Testing and trial placement of the concrete mix is to be developed and discussed with the Department

The Department will not consider any requests for change to eliminate the use of Low Permeability Concrete on this Project.

## **NOTICE TO CONTRACTOR - UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES**

If historic properties are unexpectedly encountered during Project construction, the Contractor shall immediately cease all construction activities in the immediate vicinity that may reasonably be assumed to affect the historic properties and notify the Engineer. Any historic property discoveries shall, to the extent possible, be protected in situ to allow for consultation among the Parties and the Tribes. The historic properties may be preserved in situ or mitigated on a case-by-case basis in consultation with the Parties and the Tribes. No artifacts are to be removed from the site unless approved by all parties. Notwithstanding anything to the contrary herein, the curation and disposition of any cultural resources shall be consistent with 36 C.F.R. Part 79 and other applicable law. If human remains are unexpectedly encountered during Project construction, the remains shall be treated in a respectful manner and in accordance with the respective laws of the State of Connecticut (Connecticut General Statutes Chapter 184a Section 10-388) and State of Connecticut Department of Transportation, Form 818.

## **NOTICE TO CONTRACTOR – SIGNING**

The existing signing, located within the project limits, was installed in 2019. Based on this, new signing is only to be installed for the Exit 40B Southbound off-ramp to Creeping Hemlock Drive, which is to be reconstructed under Project 102-368. All other signing within the project limits is to remain. However, roadway widening/regrading will require many of the existing sheet aluminum and all of the side mounted extruded aluminum signs to be relocated. The special provision for Item No. 1206036A – Remove and Relocate Sign provides information on sheet aluminum sign relocation and Item No. 1206097A -Relocation of Existing Signing provides information on extruded aluminum sign relocation.

Because the signs were recently installed, the sign locations shown on the survey included on the Highway Plans do not accurately reflect the existing locations of the signs.

The Contractor, in the presence of the Engineer, shall perform a sign inventory to document the condition of the existing signs located within the project limits. Any signs that are damaged by the Contractor shall be replaced at the Contractor's expense. The cost associated with the sign inventory shall be included in the general cost of the work.

**NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS)  
COORDINATES FOR SIGNS**

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new and all existing relocated State owned and maintained signs. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to DOT-SignInventory@ct.gov. Refer to the special provision for Section 12.00 General Clauses For Highway Signing.

**NOTICE TO CONTRACTOR – SITE NUMBER/BRIDGE NUMBER  
CROSS REFERENCE**

Following is a list of Site Numbers with Corresponding Bridge Numbers within project 0102-0368:

<u>Site Number</u>	<u>Bridge Number</u>	<u>Location Description</u>
1	00530B	Merritt Parkway over Main Avenue
2	00723	Merritt Parkway under East Rocks Road
3	00724	Merritt Parkway under Grumman Avenue
4	00725	Merritt Parkway over Route 53

## **NOTICE TO CONTRACTOR - COMPASS SUBMITTALS**

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through the Department's project management system, COMPASS.

Contractor submittals including, but not limited to, Shop Drawings, Working Drawings, Product Data, RFIs, and RFCs shall be generated and delivered by the Contractor in accordance with the Department's [COMPASS Contractor's User Manual](#). The administering District office will inform the Contractor of other deliverables required to be similarly submitted.

Access credentials for COMPASS will be provided free of charge to the Contractor.

The Department shall not be held responsible for delays, lack of processing or responses to submittals that do not follow the specified guidelines in the COMPASS Contractor's User Manual.



## **NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS (Davis Bacon Act)**

The following Federal Wage Determinations are applicable to this Federal- Aid contract and are hereby incorporated by reference. During the bid advertisement period, it is the bidder's responsibility to obtain the latest Federal wage rates from the US Department of Labor website, as may be revised 10 days prior to bid opening. Any revisions posted 10 days prior to the bid opening shall be the wage determinations assigned to this contract.

<b>Check Applicable WD# (DOT Use Only)</b>	<b>WD#</b>	<b>Construction Type</b>	<b>Counties</b>
<b>XX</b>	CT1	Highway	Fairfield, Litchfield, Middlesex, New Haven, Tolland, Windham
	CT2	Highway	New London
	CT3	Highway	Hartford
	CT5	Heavy Dredging (Hopper Dredging)	Fairfield, Middlesex, New Haven, New London
	CT6	Heavy Dredging	Statewide
	CT13	Heavy	Fairfield
	CT14	Heavy	Hartford
	CT15	Heavy	Middlesex, Tolland
	CT16	Heavy	New Haven
	CT17	Heavy	New London
	CT26	Heavy	Litchfield, Windham
	CT18	Building	Litchfield
	CT19	Building	Windham
	CT20	Building	Fairfield
	CT21	Building	Hartford
	CT22	Building	Middlesex
	CT23	Building	New Haven
	CT24	Building	New London
	CT25	Building	Tolland
	CT4	Residential	Litchfield, Windham
	CT7	Residential	Fairfield
	CT8	Residential	Hartford
	CT9	Residential	Middlesex
	CT10	Residential	New Haven
	CT11	Residential	New London
	CT12	Residential	Tolland

The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents. These applicable Federal wage rates will be incorporated in the final contract document executed by both parties.

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

To obtain the latest Federal wage rates, go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose "Selecting DBA WDs" and follow the instruction to search the latest wage rates for the State, County and Construction Type.

## **NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE**

The attached project specific utility work schedule(s) was provided to the Connecticut Department of Transportation (Department) by the utility companies regarding their identified work on this project.

The utility scheduling information is provided to assist the Contractor in scheduling its activities. However, the Department does not ensure its accuracy and Section 1.05.06 of the Standard Specifications still is in force.

The utility scheduling information shall be incorporated into the Contractor's pre-award schedule in accordance with the Department's Bidding and Award Manual and Section 1.05.08 of the Contract.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to the Department in accordance with Section (***1.05.08 – Schedules and Reports***) of the Contract.

The Contractor shall incorporate the contemporaneous utility scheduling information into its baseline schedule submittal. The baseline schedule shall include Contractor predecessor and successor activities to the utility work in such detail as acceptable to the Engineer.

UTILITY WORK SCHEDULE Rev 3/2015			
CTDOT Project Number:	102-296	Town:	Norwalk
Project Description:	Merritt PKWY Safety Improvements		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	8605942555	Email:	Derek.Brown@ct.gov
Utility Company:	Eversource Energy (Electric)		
Prepared By:	robert mercurio	Date Prepared:	6/9/2020
Phone:	(203) 845-3474	Email:	robert.mercurio@eversource.com
<b>Scope of Work</b>			
<p>The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.</p>			
<p>Install 1 pole and push brace, Remove 1 pole.</p>			
<b>Special Considerations and Constraints</b>			
<p>The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..</p>			
<p>Inclement weather &amp; customer outtages may cause a change to this schedule. State is responsible to accurately mark out property &amp; taking lines. Overtime needs to be approved by the State for any work required for after the hours of 8am -4pm Mon - Friday. All permits to be furnished by the State. State to approve all pole installatinn prior to utilities to start work.</p>			

**NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE STRENGTH**

The concrete strength or allowable design stress specified in the General Notes is for design purposes only. The minimum compressive strength of concrete in constructed components shall comply with the requirements of Section 6.01 Concrete for Structures.

## **NOTICE TO CONTRACTOR - ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS**

This Contract includes the application of materials subject to the Volatile Organic Compounds (VOC) content limits stated in the Regulations of Connecticut State Agencies (RCSA) Sections 22a-174-41 and -41a. All architectural and industrial maintenance (AIM) coatings and applications of such coatings must comply with these regulations.

The Contractor shall submit a Material Safety Data Sheet/Safety Data Sheet or Product Technical Data Sheet developed by the manufacturer of each material that may be subject to the Regulations. The submittal must verify both the type of AIM and its VOC Content. VOC content shall be determined based on the formulation data supplied by the materials manufacturer.

The Contractor may only use AIM coatings that contain VOCs below the respective coating category Phase II limits specified in Table 1 if either:

- a) the coating was manufactured on or after May 1, 2018, **or**
- b) the coating is being applied after April 30, 2021.

The Contractor may use AIM coatings that contain VOCs exceeding the respective coating category Phase II limits specified in Table 1 only if all of the following four conditions are met:

- a) the coating is being applied on or before April 30, 2021,
- b) the coating contains VOCs below the applicable Phase I limits specified in Table 1,
- c) the coating was manufactured prior to May 1, 2018, **and**
- d) the coating container(s) are dated (or date coded) as such.

For any coating that is not categorized within Table 1, the Contractor shall classify the coating as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of  $\geq 15$  on an 85-degree meter and  $\geq 5$  on a 60-degree meter) - Nonflat Coating,
- Registers gloss of  $\geq 70$  on a 60-degree meter - Nonflat-High Gloss Coating.

The Contractor must close all containers of coating and solvent when not in use.

Coating container labels must display the date the coating was manufactured, the manufacturer's recommendation regarding thinning with solvent, and the coating's VOC content in grams per liter (g/L) of coating. Certain coating categories as noted in Table 1 have additional labeling requirements.

The Contractor may add additional solvent to a coating only if such addition does not cause the coating to exceed the applicable VOC limit specified Table 1. The Contractor must adhere to type(s) of solvent and maximum amount of solvent recommended by coating manufacturer. VOC content of a thinned coating shall be the VOC content as listed by the manufacturer after thinning in accordance with its recommendation.

<b>TABLE 1</b>		
<b>Coating Category</b>	<b>Phase I</b>	<b>Phase II</b>
	<b>manufactured prior to May 1, 2018 VOC content limit (g/L)</b>	<b>manufactured on or after May 1, 2018 VOC content limit (g/L)</b>
Aluminum roof coating	--- <sup>1</sup>	450
Antenna coating	530	--- <sup>1</sup>
Antifouling coating	400	--- <sup>1</sup>
Basement specialty coating	--- <sup>1</sup>	400
Bituminous roof coating	300	270
Bituminous roof primer	350	350
Bond breaker	350	350
Calcimine recoater	475	475
Clear wood coating - Clear brushing lacquer <sup>2</sup>	680	275
Clear wood coating - Lacquer <sup>2,3</sup>	550	275
Clear wood coating - Sanding sealer <sup>2,4</sup>	350	275
Clear wood coating - Varnish <sup>2</sup>	350	275
Concrete curing compound	350	350
Concrete or masonry sealer/ Waterproofing concrete or masonry sealer	400	100
Concrete surface retarder	780	780
Conjugated oil varnish	--- <sup>1</sup>	450
Conversion varnish	725	725
Driveway sealer	--- <sup>1</sup>	50
Dry fog coating	400	150
Faux finishing coating <sup>2</sup>	350	350
Fire resistive coating	350	350
Fire retardant coating - Clear	650	--- <sup>1</sup>
Fire retardant coating - Opaque	350	--- <sup>1</sup>
Flat coating	100	50
Floor coating	250	100
Flow coating	420	--- <sup>1</sup>
Form-release compound	250	250
Graphic arts coating (sign paint)	500	500
High temperature coating	420	420
Impacted immersion coating	780	780
Industrial maintenance coating <sup>2</sup>	340	250
Industrial maintenance coating	340	250
Low solids coating	120	120
Magnesite cement coating	450	450
Mastic texture coating	300	100
Metallic pigmented coating	500	500

<b>TABLE 1</b>		
<b>Coating Category</b>	<b>Phase I</b>	<b>Phase II</b>
	<b>manufactured prior to May 1, 2018 VOC content limit (g/L)</b>	<b>manufactured on or after May 1, 2018 VOC content limit (g/L)</b>
<b>Multi-color coating</b>	250	250
<b>Nonflat coating</b>	150	100
<b>Nonflat high gloss coating<sup>2</sup></b>	250	150
<b>Nuclear coating</b>	450	450
<b>Pre-treatment wash primer</b>	420	420
<b>Primer, sealer and undercoater</b>	200	100
<b>Quick-dry enamel</b>	250	--- <sup>1</sup>
<b>Quick-dry primer, sealer and undercoater</b>	200	--- <sup>1</sup>
<b>Reactive penetrating carbonate stone sealer<sup>2</sup></b>	--- <sup>1</sup>	500
<b>Reactive penetrating sealer<sup>2</sup></b>	--- <sup>1</sup>	350
<b>Recycled coating</b>	250	250
<b>Roof coating</b>	250	250
<b>Rust preventive coating<sup>2</sup></b>	400	250
<b>Shellac Clear</b>	730	730
<b>Shellac Opaque</b>	550	550
<b>Specialty primer, sealer and undercoater<sup>2</sup></b>	350	100
<b>Stain</b>	250	250
<b>Stone consolidant<sup>2</sup></b>	--- <sup>1</sup>	450
<b>Swimming pool coating</b>	340	340
<b>Thermoplastic rubber coating and mastic</b>	550	550
<b>Traffic marking coating</b>	150	100
<b>Traffic marking coating</b>	150	100
<b>Tub and tile refinish</b>	--- <sup>1</sup>	420
<b>Waterproofing membrane</b>	--- <sup>1</sup>	250
<b>Waterproofing sealer</b>	250	--- <sup>1</sup>
<b>Wood coating<sup>2</sup></b>	--- <sup>1</sup>	275
<b>Wood preservative</b>	350	350
<b>Zinc-rich primer<sup>2</sup></b>	--- <sup>1</sup>	340

1 Classify as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥15 on an 85-degree meter and ≥5 on a 60-degree meter) – Nonflat Coating
- Registers gloss of ≥70 on a 60-degree meter – Nonflat-High Gloss Coating

2 Container must be appropriately labeled. See RCSA 22a-174-41a

3 “Clear Wood Coating – Lacquer” includes lacquer sanding sealer

4 “Clear Wood Coating - Sanding Sealer” does not include lacquer sanding sealer

-END-

## **NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS**

The Department will reimburse services of State Police Officers as a direct payment to the Department of Emergency Services and Public Protection. Payment for State Police Officers must be approved by the Engineer. Any State Police Officers used by the Contractor for its convenience is the responsibility of the Contractor. A separate payment item for State Police Officers is not included in this Contract.

Any costs associated with coordination and scheduling of State Police Officers shall be included in the lump sum bid price for Item No. 0971001A – Maintenance and Protection of Traffic.



**NOTICE TO CONTRACTOR - FORM 818 ARTICLE 1.05.19 – FIELD  
ERECTOR PREQUALIFICATION**

The following requirements will be incorporated into 1.05 – Control of the Work to be included in Contracts as of the January 2021 Supplements to the Standard Specifications, Form 818:

**1.05.19—Field Erector Prequalification:** Contractors erecting structural steel for Department projects are required to possess the appropriate AISC Certified Steel Erector (CSE) Certification as follows.

1. For Department bridge and large sign installation projects, Contractors are required to possess the certification stated in the Contract. All Contractors performing structural steel work on new construction or rehabilitation work of bridges will be required to possess CSE certification with a Bridge Erection Endorsement.
2. For Department Facilities projects, CSE certification for Steel-Framed Buildings is required when erecting steel on both new and existing Facilities projects.

Those affected shall plan accordingly.

## **NOTICE TO CONTRACTOR - 9.49 – FURNISHING, PLANTING AND MULCHING TREES, SHRUBS, VINES AND GROUND COVER PLANTS**

The Contractor is hereby notified that Section 9.49 of the *Standard Specifications* in Form 818 has been revised as follows:

1. The Contractor must secure an [Encroachment Permit](#) to work in the plantings area to satisfy the one year warranty requirements.
2. The Encroachment Permit requires a [Permit Bond](#).
3. The Contractor is responsible for the One-Year Establishment Period, 1 year from the date of final acceptance to the satisfactory completion of the planting activities.
4. The Contractor shall secure a Permit Bond in the amount of \$10,000 or 20% of the sum of all plant items, whichever is greater, along with an Encroachment Permit from the Department in order to guarantee the One-Year Establishment Period.

See Article 9.49.03-15 for more information.

## **NOTICE TO CONTRACTOR - ENVIRONMENTAL INVESTIGATIONS**

Environmental site investigations have been conducted that involved the sampling and laboratory analysis of soil, sediment, concrete, timbers and groundwater collected from various locations and depths within the project limits. The results of these investigations indicated the presence of detectable concentrations of total petroleum hydrocarbons (TPH), volatile organic compounds (VOC), polynuclear aromatic hydrocarbons (PAH) and RCRA 8 metals in the soils within proposed construction areas. The DEP groundwater classification beneath the site is GA. Based on these findings, three (3) AOEC's exist(s) within the proposed project limits. In addition, "Low Level" AOEC's exist within the proposed project limits, where the compounds detected at concentrations below the numeric criteria. The presence of the compounds at these concentrations will not require material-handling measures beyond those required for normal construction operations. The presence of these compounds at these concentrations will require the disposition of soils excavated from these areas to be restricted as described herein. Material excavated from within the "Low Level" AOEC's that cannot be reused within the Project limits will require disposal at an approved treatment/disposal facility in accordance with Item No. 0202315A - Disposal of Controlled Materials.

The Contractor is hereby notified that controlled materials requiring special management or disposal procedures will be encountered during various construction activities conducted within the project limits. Therefore, the Contractor will be required to implement appropriate health and safety measures for all construction activities to be performed within the AOEC(s). These measures shall include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The City of Norwalk and Town of Westport, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of contaminated sediments, timbers, concrete water, and controlled and hazardous materials.

All suitable material excavated within the "Low Level" AOEC(s) shall be utilized as fill/backfill within the project limits, in accordance with the following conditions: (1) such soil is deemed to be structurally suitable for use as fill by the Engineer; (2) such soil is not placed below the water table; (3) the DEP groundwater classification of the area where the soil is to be reused as fill does not preclude said reuse; and (4) such soil is not placed in an area subject to erosion. Soils within the "Low Level" AOEC(s) are to be reused on-site prior to the use of other soils and/or fill such that no excess soils requiring off-site disposal are generated from the "Low Level" AOEC(s).

The Sections which shall be reviewed by the Contractor include, but are not limited to, the following:

- Item No. 0101000A - Environmental Health and Safety
- Item No. 0101109A – Hazardous Materials Excavation
- Item No. 0101128A - Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area
- Item No. 0101126A – Disposal of Hazardous Waste
- Item No. 0101130A – Environmental Work – Solidification
- Item No. 0101117A - Controlled Materials Handling
- Item No. 0202315A - Disposal of Controlled Materials
- Item No. 0202318A - Management of Reusable Controlled Material
- Item No. 0204213A – Handling Contaminated Groundwater

The Contractor is alerted to the fact that a Department environmental consultant will be on site for excavation and dewatering activities within the AOEC(s), to collect soil and groundwater samples (if necessary), and to observe site conditions for the State. **The WSA on the plans is to be used exclusively for temporary stockpiling of excavated materials from within project AOEC(s) for determination of disposal classification. Access to the WSA may be limited. The Contractor shall co-ordinate with [insert name and phone # here] for WSA access.**

Information pertaining to the results of the environmental investigations discussed can be found in the documents listed below. The results contained in the environmental investigation reports listed below show levels of various contaminants that the Contractor may encounter during construction. Actual levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed as non-hazardous at one or more of the disposal facilities listed in Item No. 0202315A - Disposal of Controlled Materials. These documents shall be available for review at the Office of Contracts, 2800 Berlin Turnpike, Newington, Connecticut.

#### **Task 210 - Surficial Site Investigation.**

#### **Task 710**

## **NOTICE TO CONTRACTOR - ELECTRONIC ENGINEERING DATA (EED)**

The EED is an assembly of engineering data files that were used to produce the Contract plans.

**Electronic Engineering Data (EED) is provided for information purposes only. In case of conflict between the EED and the Contract plans and specifications, the contract plans and specifications shall govern.** The EED has been reviewed by the Department for quality control purposes, but it is the Contractor's responsibility to build the Project per the contract plans and specifications.

The EED is being provided to the Engineer for GPS/RTS inspection. The Contractor may use the EED to assist in bidding, layout and Automated Machine Control/Guidance.

The EED includes geospatially-correct 2D CAD files and may include horizontal and vertical alignment data files, 3D surface model files (break-line features and triangles) and a preference file. The data is being provided in two formats:

- Native Format
  - Bentley MicroStation CAD files (dgn)
  - Bentley SS2 InRoads Alignment Files (alg)
  - Bentley SS2 InRoads Digital Terrain Models (dtm)
  - Bentley SS2 InRoads Preference File (xin)
- Converted Format (for use in GPS/RTS Site equipment)
  - AutoCAD CAD files (dxf)
  - Alignment files (xml)
  - Surface Models (xml)

For a complete list of EED files, see the EED file manifest (PDF) located in the "EED – Highways & Survey.zip" file which is posted with the contract PS&E's in the 240\_Contract\_Development folder on ProjectWise.

**NOTICE TO CONTRACTOR – SECTION 1.05 - CONTROL OF THE WORK**

**1.05.03 – CONFORMITY WITH PLANS AND SPECIFICATIONS (INCLUDING QUALITY CONTROL)**

The Contractor is hereby notified that a Quality Management Plan will be required for this Project in accordance with Standard Specifications Article 1.05.03 – Conformity with Plans and Specifications (including Quality Control).

## **NOTICE TO CONTRACTOR - QUALITY CONTROL PROGRAM**

### **ITEM #0969051A CONTRACTOR QUALITY CONTROL PROGRAM**

This Contract includes the above-noted item and special provision for Contractor Quality Control Program, developed to supplement Article 1.05.03 of the standard specifications.

A minimum lump sum bid amount is included within the special provision.

The Contractor must be aware that the special provision requires that a Quality Control Manager (QCM) be proposed to the Department within thirty (30) days after Contract Award and that the written QC Program be submitted to the Department within forty-five (45) days after Contract Award.

The Contractor must also be aware of the staffing, inspection, reporting and all other requirements of the special provision.

## **NOTICE TO CONTRACTOR - EQUIPMENT OPERATION AND PROTECTION**

All trucks using any road designated as a Parkway must be equipped with two (2) amber strobe type flashers, visible from the rear only and with two (2) reflectorized slow moving vehicle triangles 14"Hx16"W mounted on the rear of the truck. The lights must show the full overall width of the vehicle and each shall be mounted on a hinged or telescoping post, so that the center of the light will not be less than 10 ft. above the ground when in an operating position. This signal system shall be in operation continuously while the vehicle is on the Parkway travelway.

During the course of the project and in accordance with Section 14-298-237(b) of the State Traffic Commission Regulations, the Contractor's trucks and equipment may be authorized by the Engineer to travel over the portions of the Parkway from which they are normally excluded. However, it must be noted that no authorization will be given until;

- 1) The Contractor has contacted the Department's Oversize/Overweight Permit Section at (860) 594-2880 and verified that the structures on the Parkway that he is planning to traverse with his equipment have sufficient vertical clearance and/or weight carrying capacity.
- 2) Each vehicle has been inspected by the Engineer and found to conform to the specifications herein.

Each driver of such equipment shall be given instructions by the Contractor concerning the manner of operation while on the Parkway. All vehicles shall be limited in travel between the nearest interchange and the work site.

The Engineer reserves the right to revoke authorization if the Contractor fails to abide by the regulations herein prescribed. The Contractor will not be permitted to park equipment on the median strip and will not be permitted to cross the median strip without specific permission of the Engineer.



## **SECTION 1.02 - PROPOSAL REQUIREMENTS AND CONDITIONS**

### **1.02.01—Contract Bidding and Award:**

After the first sentence of the third paragraph, add the Following:

In accordance with the provisions of the Construction Contract Bidding and Award Manual, bidders must be prequalified for Group No. 05 – Paving and Associated Construction – Limited Access Highways/Freeways, to be eligible to bid on this project. Bidders that are not prequalified for this work classification will not be approved to bid on this project.

## **SECTION 1.05 - CONTROL OF THE WORK**

*Replace Article 1.05.02 with the following:*

### **1.05.02—Plans, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department's Action:**

**1. Plans:** The plans prepared by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare Working Drawings, Shop Drawings or Product Data necessary to complete the Project.

Project submittals shall be delivered to the Department using the Department's project management system COMPASS. The Contractor shall acquire and maintain access to COMPASS for the delivery of submittals as listed herein. The delivery processes and document tracking procedures shall be performed in accordance with this specification and the [COMPASS Contractor's User Manual](#).

**2. Working Drawings:** When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the Working Drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The Working Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Working Drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with "No Exceptions Noted" or "Exceptions as Noted." Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

All Working Drawing submission documents shall conform to the following requirements:

**A. Drawings:**

- i. Delivered in a single multi-page PDF file.
- ii. Shall be sized ANSI D (34 inches × 22 inches).
- iii. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department's stamp.
- iv. Text height and width shall be 0.125 inch.
- v. All letter characters shall be uppercase.
- vi. Shall be searchable.
- vii. Shall be black and white.
- viii. Cover Page - shall be digitally signed by the Contractor's Professional Engineer.

- ix. All pages shall include a watermark of the Professional Engineer's stamp in a common area.
- B. Calculations:
  - i. Delivered in a single PDF file
  - ii. Shall be sized ANSI A (8.5 inches × 11 inches).
  - iii. Cover Page shall be digitally signed by the Contractor's Professional Engineer.
- C. Supporting Documentation:
  - i. Delivered as an independent single PDF file
  - ii. Shall be sized ANSI A (8.5 inches × 11 inches).
- a. Working Drawings for Permanent Construction: The Contractor shall supply to the Department a certificate of insurance in accordance with 1.03.07 at the time that the Working Drawings for the Project are submitted.  
 The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of \$2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum \$250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at least the deductible amount. The Contractor's designer shall obtain the appropriate and proper endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of
  - (i) 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or
  - (ii) 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.
- b. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Department in accordance with this Specification, with the exception of requirements defined under a. Working Drawings for Permanent Construction.

**3. Shop Drawings:** When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Shop Drawings to the Department for review.

Shop Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Shop Drawings but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with “No Exceptions Noted” or “Exceptions as Noted.” Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Shop Drawing submission documents shall conform to the following requirements:

- A. Delivered in a single multi-page PDF file.
- B. Shall be sized ANSI D (34 inches × 22 inches).
- C. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department’s stamp.
- D. Text height and width shall be 0.125 inch.
- E. All letter characters shall be uppercase.
- F. Shall be searchable.
- G. Shall be black and white.

**4. Product Data:** When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Product Data to the Department for review.

Product Data shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Product Data but the cost thereof shall be considered as included in the general cost of the work.

The Contractor shall submit the Product Data in a single submittal for each element of construction.

The Contractor shall mark each copy of the Product Data submittal to show applicable choices and options. Where Product Data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product Data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer’s printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

The Contractor is only required to deliver paper copies that have been stamped with “No Exceptions Noted” or “Exceptions as Noted.” Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Product Data submission documents shall conform to the following requirements:

- A. Delivered in a single PDF file
- B. Shall be sized ANSI A (8.5 inches × 11 inches).
- C. Marked to indicate applicable choices and options.
- D. Where non-applicable information and products are included, notations shall be made to clearly delineate applicable from non-applicable information.

**5. Submittal Preparation and Processing – Review Timeframes:** If the Department deems a submittal incomplete or unacceptable because not all the required documents were attached, documents are incomplete, or are in the incorrect format, the Department will send the submittal back to the Contractor before reviewing. When a submittal is sent back as incomplete, the associated documents have not been reviewed and the review process and any associated timeframe requirements have not begun.

The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department. For any submittals stamped with “Revise and Resubmit” or “Rejected,” the Department is allowed an additional 20 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor’s failure to transmit submittals sufficiently in advance of the work to permit processing.

The furnishing of Shop Drawings, Working Drawings or Product Data, or any comments or suggestions by the Designer or Engineer concerning Shop Drawings, Working Drawings or Product Data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the Shop Drawings, Working Drawings and Product Data shall not serve to relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

**6. Department’s Action:** The Department will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked “No Exceptions Noted” or “Exceptions as Noted” by the Department. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

- a. If submittals are marked “No Exceptions Noted,” the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer’s written warranty in compliance with the Contract provisions.
- b. If submittals are marked “Exceptions as Noted,” the considerations or changes noted by the Department’s Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Department if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.
- c. If submittals are marked “Revise and Resubmit,” the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.

- d. If submittals are marked “Rejected,” the Contractor shall prepare and submit a new submittal in accordance with the Department’s notations. The resubmissions require an additional review and determination by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.

## **SECTION 1.07 – LEGAL RELATIONS AND RESPONSIBILITIES**

### **Article 1.07.11 Opening of Section of project to Traffic or Occupancy:**

*Add the following sentence to the last paragraph:*

“In cases in which guiderail is damaged by the traveling public, repair or replacement will be reimbursable as contained elsewhere herein.”

## **SECTION 1.08 - PROSECUTION AND PROGRESS**

### **Article 1.08.04 - Limitation of Operations - Add the following:**

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

#### **Route 15 (Merritt Parkway)**

The Contractor shall not perform any work that will interfere with traffic operations during the below State observed Legal Holidays and Legal Holiday Periods.

A. On the following State observed Legal Holidays:

New Year's Day	Labor Day
Good Friday	Thanksgiving Day
Memorial Day	Christmas Day
Independence Day	

B. During the following Legal Holiday Periods:

- i. When an above Legal Holiday is celebrated on a Sunday or Monday: From 6:00 a.m. the immediately preceding Friday to 6:00 a.m. the immediately following Tuesday.
- ii. When an above Legal Holiday is celebrated on a Tuesday, Wednesday, or Thursday: From 6:00 a.m. the day before to 6:00 a.m. the day after, except Thanksgiving (see below for Thanksgiving specific restrictions).
- iii. When an above Legal Holiday is celebrated on a Friday or Saturday: From 6:00 a.m. the immediately preceding Thursday to 6:00 a.m. the immediately following Monday.
- iv. Thanksgiving: From 6:00 a.m. the Wednesday before to 6:00 a.m. the Monday after.

During all other times:

- A. The Contractor shall maintain and protect traffic as shown on the accompanying "Limitation of Operations" charts, which dictate the maximum number of lanes allowed to be closed and the allowable hours for implementing a rolling roadblock operation for each day of the week.
- B. Subject to the review and approval of the Engineer, the Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work, as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. during all non-Legal Holiday Periods.

\*\*\*\*\*

#### **Stage Construction**

The Contractor shall stage construct this project in accordance with the Typical Traffic Shift Plans and Stage Construction plans contained in the special provision for Item. No. 0971001A. The installation of the concrete curb and gutter section will be performed in accordance with the limitation of operations charts included herein.

The Contractor must maintain an acceleration lane for each on ramp with an acceleration length that meets or exceeds the Department's minimum requirements (300 feet parallel section plus a 350 feet taper section), or that meets or exceeds the length of the existing on-ramp acceleration lane. Any changes must be approved by the Engineer.



The Contractor will not be allowed to have more than two work zones on Route 15 in each direction at a time. Each work zone shall be 1.5 miles or less with a minimum of one mile of open roadway between the work zones.

Upon approval of the Engineer, during the allowable period, the Contractor will be allowed to implement lane closures using the Traffic Control Pattern Lane Closure With Shift (S-Pattern) plan included in the Contract plans.

\*\*\*\*\*

**All Ramps and Turning Roadways (Allowable Closures)**

During the allowable periods noted in the below ramp sections and as approved by the Engineer, the Contractor may close any ramp or turning roadway where the available width is less than 28 feet wide for contract work and detour traffic. The Contractor shall submit a detour plan to the Engineer at least four weeks prior to any ramp or turning roadway closures. The detour plan submitted shall consist of a map showing the detour route, a detail showing the ramp closure, changeable message sign locations, traffic person locations, location of detour signs, sign numbers, and sign details.

The Contractor shall not be allowed to close the ramps and detour traffic during a Legal Holiday or Legal Holiday Period.

**Merritt Parkway Southbound Exit 40B Off-Ramp to Creeping Hemlock Drive**

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 10:00 a.m. & between 3:00 p.m. and 6:00 p.m.

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic on:

Monday through Friday between 10:00 a.m. and 3:00 p.m. & between 6:00 p.m. and 9:00 p.m.

**Merritt Parkway Northbound On-Ramp from Main Avenue Northbound**

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic on:

Monday through Friday between 9:00 a.m. and 3:00 p.m. & between 6:00 p.m. and 10:00 p.m.

**All Other Ramps and Turning Roadways**

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic on:

Monday through Friday between 9:00 a.m. and 3:00 p.m. & between 6:00 p.m. and 9:00 p.m.

**Bridge No. 00724 – Grumman Avenue over Merritt Parkway**

The Contractor will not be allowed to perform any work that will interfere with the described traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

During the performance of Major Bridge Work, the Contractor will be allowed to maintain an alternating one-way traffic operation controlled by temporary signalization in accordance with the stage construction plan contained in the contract plans. The duration for the alternating one-way traffic operation shall not exceed 5 consecutive weeks.

The alternating one way traffic operation can only be installed during the summer months when school is not in session. The Contractor shall obtain the school schedule and obtain concurrence from the Engineer for the proposed dates that this operation will be in effect.

**S.R. 719 (Main Avenue)**

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 10:00 a.m. & between 3:00 p.m. and 8:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

**All Other Roadways**

The Contractor will not be allowed to perform any work that will interfere with the described traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

**Additional Lane Closure Restrictions**

It is anticipated that work on adjacent projects will be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate that coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

The Contractor will be required to coordinate all lane closures on project roadways with local Emergency Services as directed by the Engineer.

**Limitation of Operations Chart – Maximum Number of Lanes Allowed to be Closed and  
Hours Allowed for a Rolling Roadblock (RRB)**

Route: 15 NB Exit 34 (Rte. 104) Off-Ramp to Exit 39A (US 7) Off-Ramp Number of Through Lanes: 2							
Hour Beginn -ing	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	1*	1*	1*	1*	1*	1*
6 AM	1*	0	0	0	0	0	1*
7 AM	1*	0	0	0	0	0	1
8 AM	1	0	0	0	0	0	S
9 AM	S	S	S	S	S	S	S
10 AM	S	S	S	S	S	S	0
11 AM	0	S	S	S	S	0	0
Noon	0	S	S	S	0	0	0
1 PM	0	S	S	S	0	0	0
2 PM	0	0	0	0	0	0	0
3 PM	0	0	0	0	0	0	0
4 PM	0	0	0	0	0	0	0
5 PM	0	0	0	0	0	0	0
6 PM	S	0	0	0	0	0	S
7 PM	S	S	S	S	0	0	S
8 PM	S	S	S	S	S	S	S
9 PM	S	1	1	1	S	S	S
10 PM	S	1*	1*	1*	1*	1	1
11 PM	1	1*	1*	1*	1*	1*	1*

Route: 15 NB Exit 39A (US 7) Off-Ramp to North Project Limit Number of Through Lanes: 2							
Hour Beginn -ing	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	1*	1*	1*	1*	1*	1*
6 AM	1*	0	0	0	0	0	1*
7 AM	1*	0	0	0	0	0	1
8 AM	1	0	0	0	0	0	S
9 AM	S	S	S	S	S	S	S
10 AM	S	S	S	S	S	S	S
11 AM	S	S	S	S	S	S	S
Noon	S	S	S	S	S	S	S
1 PM	S	S	S	S	S	S	S
2 PM	S	S	S	S	S	S	S
3 PM	S	0	0	0	0	0	S
4 PM	S	0	0	0	0	0	S
5 PM	S	0	0	0	0	0	S
6 PM	S	S	S	S	S	S	S
7 PM	S	S	S	S	S	S	S
8 PM	S	S	S	S	S	S	1
9 PM	S	1	1	1	1	1	1
10 PM	1	1*	1*	1*	1*	1*	1
11 PM	1*	1*	1*	1*	1*	1*	1*

**On Legal Holidays and within Legal Holiday Periods, all hours shall be '0.'**

**“0” = No closures allowed = all available travel lanes, including exit only lanes, climbing lanes, gore areas, and all available shoulder widths shall be open to traffic during this time period.**

**“S” = Shoulders are allowed to be closed = all available travel lanes, including exit only lanes, climbing lanes, and gore areas shall be open to traffic during this time period.**

**“1” = One lane closure is allowed. Adjacent shoulder(s) and/or gore areas may also be closed.**

**“\*” = Signifies those hours where a rolling roadblock may be implemented.**

**Limitation of Operations Chart – Maximum Number of Lanes Allowed to be Closed and  
Hours Allowed for a Rolling Roadblock (RRB)**

Route: 15 SB Fairfield/Trumbull Town Line to Exit 41 (Rte. 33) Off-Ramp Number of Through Lanes: 2								Route: 15 SB Exit 41 (Rte 33) Off-Ramp to Southern Project Limit Number of Through Lanes: 2							
Hour Beginn- ing	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Hour Beginn- ing	Sun	Mon	Tues	Wed	Thu	Fri	Sat
Mid	1*	1*	1*	1*	1*	1*	1*	Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*	1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*	2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*	3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*	4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	S	S	S	S	S	1*	5 AM	1*	S	S	S	S	S	1*
6 AM	1*	0	0	0	0	0	1	6 AM	1*	0	0	0	0	0	1
7 AM	1*	0	0	0	0	0	S	7 AM	1*	0	0	0	0	0	S
8 AM	1	0	0	0	0	0	S	8 AM	1	0	0	0	0	0	S
9 AM	S	S	S	S	S	S	S	9 AM	S	S	S	S	S	S	S
10 AM	S	S	S	S	S	S	S	10 AM	S	S	S	S	S	S	S
11 AM	S	S	S	S	S	S	S	11 AM	S	S	S	S	S	S	S
Noon	0	S	S	S	S	S	S	Noon	0	S	S	S	S	S	S
1 PM	0	S	S	S	S	S	S	1 PM	0	S	S	S	S	S	S
2 PM	0	S	S	S	S	S	S	2 PM	0	S	S	S	S	S	S
3 PM	0	0	0	0	0	0	S	3 PM	0	0	0	0	0	0	S
4 PM	0	0	0	0	0	0	S	4 PM	0	0	0	0	0	0	S
5 PM	0	0	0	0	0	0	S	5 PM	0	0	0	0	0	0	S
6 PM	0	S	S	S	S	S	S	6 PM	0	S	S	S	S	S	S
7 PM	0	1	1	1	S	S	S	7 PM	S	1	1	1	S	S	S
8 PM	S	1	1	1	1	1	1	8 PM	S	1	1	1	1	1	1
9 PM	S	1	1	1	1	1	1	9 PM	S	1	1	1	1	1	1
10 PM	S	1*	1*	1*	1*	1*	1*	10 PM	1	1*	1*	1*	1*	1*	1*
11 PM	1*	1*	1*	1*	1*	1*	1*	11 PM	1*	1*	1*	1*	1*	1*	1*

**On Legal Holidays and within Legal Holiday Periods, all hours shall be '0.'**

**"0" = No closures allowed = all available travel lanes, including exit only lanes, climbing lanes, gore areas, and all available shoulder widths shall be open to traffic during this time period.**

**"S" = Shoulders are allowed to be closed = all available travel lanes, including exit only lanes, climbing lanes, and gore areas shall be open to traffic during this time period.**

**"1" = One lane closure is allowed. Adjacent shoulder(s) and/or gore areas may also be closed.**

**"\*" = Signifies those hours where a rolling roadblock may be implemented.**

## **SECTION 1.10 - ENVIRONMENTAL COMPLIANCE**

### **In Article 1.10.03-Water Pollution Control: REQUIRED BEST MANAGEMENT PRACTICES**

*Add the following after Required Best Management Practice Number 13:*

14. The Contractor is hereby notified that the State listed species of Special Concern eastern box turtle (*Terrapene carolina carolina*), is present within the Project limits. In Connecticut, this terrestrial turtle lives in a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. Typically however, eastern box turtles are found in well-drained forest bottomlands and open deciduous forests. They will use wetland areas at various times during the season. During the hottest part of a summer day, they will wander to find springs and seepages where they can burrow into the moist soil. Eastern box turtles overwinter in upland forest, typically covered by leaf litter or woody debris. As temperatures drop, the turtles burrow down into soft ground.

The contractor, through the Engineer, shall meet with the Department's Office of Environmental Planning (OEP) to review the schedule of activities planned. The Engineer will ensure the following protocols are followed and maintained through the duration of the project.

For any work done during the eastern box turtle's active period (April 1 to October 31) the Department will require the following precautionary measures to protect the eastern box turtle and eastern box turtle habitat:

- a. All areas within the Project limits must be surveyed and cleared of any turtles immediately prior to the commencement of initial clearing and grubbing activities.
- b. All construction personnel working within eastern box turtle habitat must be apprised of the species description and the possible presence of this listed species.
- c. Exclusionary practices will be required in order to prevent any eastern box turtle access to construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- d. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. It shall be regularly inspected / maintained to prevent any gaps or openings at ground level. Standard silt fence is adequate; fencing with netting shall not be used.

- e. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.
- f. Any eastern box turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and the Engineer shall be immediately informed in order to contact OEP with the location.
- g. All staging and storage areas in the vicinity of turtle habitat, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed by and receive written approval from OEP through the Engineer.
- h. No heavy machinery or vehicles may be parked in any unapproved eastern box turtle habitat.
- i. Exclusionary fencing shall be removed when it is no longer needed, and silt fence shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.

Work may take place during the eastern box turtle's inactive (hibernation) period (November 1 to March 31) with the following additional precautionary measure:

- a. Exclusionary fencing must be installed and the area inspected for turtles by the Engineer or Engineer's approved representative prior to October 1.

These practices will be applied to the entire Project unless a sketch is attached, which identifies specific areas of concern.

This species is protected by State laws, which prohibit killing, harming, taking, or keeping them in your possession. Photographs and the laws protecting eastern box turtles shall be posted in the Contractor's and DOT field offices (species ID sheets will be provided by OEP).

## **SECTION 6.03 - STRUCTURAL STEEL**

Section 6.03 is amended as follows:

### **6.03.03—Construction Methods: Revise Subarticle 4(f) “High Strength Bolted Connections” as follows:**

*Replace the first paragraph and Table A: "Minimum Bolt Tension in kips" with the following:*

" The assembly of structural connections using high-strength bolts shall be installed so as to develop the minimum required bolt tension specified in Table A. The Manufacturer's certified test report; including the rotational capacity test results must accompany the fastener assemblies. Fastener Assemblies delivered without the certified reports will be rejected.

**Table A: Minimum Bolt Tension in kips\***

<b><u>Bolt Diameter (Inches)</u></b>	<b><u>ASTM F3125 Grade A325</u></b>	<b><u>ASTM F3125 Grade A490</u></b>
5/8	19	24
3/4	28	35
7/8	39	49
1	51	64
1 1/8	64	80
1 1/4	81	102
1 3/8	97	121
1 1/2	118	148

\*Equal to 70% of specified minimum tensile strength of bolts (as specified in ASTM Specifications for tests of full-size F3125 Grade A 325 and F3125 Grade A 490 bolts with UNC threads, loaded in axial tension) rounded to the nearest kip.

*Revise the last sentence of the sixteenth paragraph, "Rotational-Capacity Tests" as follows:*

" When performed in the field, the procedure shall meet the requirements of ASTM F3125 Annex A2."

*In Table C, insert the word "Grade" in the third row before every occurrence of "A325" and "A490."*

## **SECTION 9.49 – FURNISHING, PLANTING AND MULCHING TREES, SHRUBS, VINES AND GROUND COVER PLANTS**

### **Article 9.49.03 – Construction Methods:** *Add the following:*

Additionally, all work under Section 9.49 shall be performed in accordance with the latest edition of the American National Standards Institute (ANSI) “American National Standard for Tree Care Operations,” ANSI A300 (Part 6).

#### **9 - Watering:** *Delete the first sentence, and replace with the following:*

All plants shall be thoroughly watered at the time of planting and one week following the completion of planting of each plant. In addition, plantings installed in the spring shall be watered a minimum of once every two weeks until October 31<sup>st</sup> of the calendar year in which the plants were installed. Plantings installed in the Fall shall be watered once every two weeks until October 31<sup>st</sup>, or a minimum of four times not less than one week apart, whichever provides more occurrences of watering during the calendar year in which the plants were installed. Plantings installed in the fall shall then also be watered once every two weeks from June 1<sup>st</sup> to August 31<sup>st</sup> during the following calendar year in which the plants were installed. After these specified times, plantings shall be watered as necessary or as directed should conditions of drought occur, or if plantings show visual signs of wilting.

**15- One-Year Establishment Period:** *Delete the entire sub article, and replace with the following:*

#### **15- Two-Year Establishment Period:**

All plant material shall be subject to a Two-Year Establishment Period. During this time, the Contractor shall use currently accepted horticultural practices to keep all plant material installed in a healthy, vigorous growing condition at the date of final acceptance. The date of final acceptance shall be 2 full calendar year following the satisfactory completion of the planting activities as confirmed by the Engineer. The Contractor shall secure a Permit Bond in the amount of 30% of the sum of all plant items, along with an Encroachment Permit from the Department in order to guarantee the Two-Year Establishment Period.

The Permit Bond shall be provided to the Department at the completion and acceptance of all planting. A semi-final inspection will be held 1 year from the date of installation, with the Contractor, Engineer, and Landscape Designer in attendance, to determine the acceptability of the plant establishment. An inventory of losses and rejected materials will be made by the Department and plant replacement and other corrective clean up measures will be determined and shall be performed by the Contractor. A final inspection will be held 2 years from the date of installation, with the Contractor, Engineer, and Landscape Designer in attendance, to again determine the acceptability of the plant establishment. An inventory of losses and rejected materials will be



made by the Department and plant replacement and other corrective clean up measures will again be determined and performed by the Contractor. After the Contractor completes all corrective actions, the DOT Encroachment Permit and Permit Bond will be released by the Department.

**Article 9.49.04 –Method of Measurement:** *Add the following:*

Watering and watering equipment and systems; and all other plant care required during the Two-Year Establishment Period in accordance with this specification will not be measured for payment.

## **SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING**

### **Description:**

Work under this item shall conform to the requirements of Section 12.00 supplemented as follows:

### **12.00.07 – Global Positioning System (GPS) coordinates for signs:**

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new permanent and all existing relocated State owned and maintained signs (temporary and construction signs are not to be included) installed in the project. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to [DOT-SignInventory@ct.gov](mailto:DOT-SignInventory@ct.gov).

The horizontal datum is to be set to the State Plane Coordinate System, North American Datum of 1983 (NAD83) in feet. The minimum tolerance must be within 10 feet. The format of the GPS information shall be provided in a Microsoft Office compatible spreadsheet (Excel) file with data for each sign. The record for each sign installed is to be compatible with the anticipated CTDOT Sign Inventory and Management System (CTSIMS). The following format shall be used. However, the data fields noted by “#” are not required for the project submission. These entries will be completed as part of the Traffic Engineering CTSIMS data upload.

The cost of this work shall be included in the cost of the respective sign face – sheet aluminum and sign face – extruded aluminum items. The receipt of this electronic database must be received and accepted by the Engineer prior to final payment for items involving permanent highway signing. The electronic database information shall detail information regarding the sign actually installed by the project.

Field Number	Type	size	Description
1	text	20	Record Number (starting at 1...)
2	text	20	Sign Catalog Number
# 3	text	10	Size Height
# 4	text	10	Size Width
5	text	25	Legend
# 6	text	10	Background Color
# 7	text	10	Copy Color
8	Link	25	Material (see acceptable categories)
9	text	30	Comments if any
# 10	text	20	MUTCD Type
11	text	15	Town

	12	text	5	Route
	13	text	5	Route direction
#	14	text	10	Highway Log Mileage
	15	text	15	Latitude
	16	text	15	Longitude
	17	text	25	Mounting Type
	18	text	25	Reflective Sheeting Type
	19	date	25	Date Installed
	20	text	10	Number of Posts
	21	text	255	Sheeting Manufacturer name and address
	22	text	15	State Project Number (or)
	23	text	15	Encroachment Permit number.
	24	Graphic	*	Sign Picture Graphic.

\* Graphics provided shall be representative of the sign supplied and be in color. Graphic formats shall be either JPG or TIFF and provided with a recommended pixel density of 800 x 600. The graphic shall be inserted in the supplied media in field 24 for each sign.

## **ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT:**

### **Description**

To provide construction industry related job opportunities to minorities, women and economically disadvantaged individuals; and to increase the likelihood of a diverse and inclusive workforce on Connecticut Department of Transportation (ConnDOT) projects.

All contractors (existing and newcomers) will be automatically placed in the Workforce Development Pilot. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level for new projects. Instead, these requirements will be applicable on an annual basis for each contractor performing work on ConnDOT projects.

The OJT Workforce Development Pilot will allow a contractor to train employees on Federal, State and privately funded projects located in Connecticut. However, contractors should give priority to training employees on ConnDOT Federal-Aid funded projects.

### **Funding**

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be allocated from the ½ of 1% provided for OJT funding, and will be based on hours trained, not to exceed a maximum of \$25,000.00 per year; per contractor.

### **Minorities and Women**

Developing, training and upgrading of minorities, women and economically disadvantaged individuals toward journeyman level status is the primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority, women and economically disadvantaged individuals as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training whether a member of a minority group or not.

### **Assigning Training Goals**

The Department, through the OJT Program Coordinator, will assign training goals for a calendar year based on the contractor's past two year's activities and the contractor's anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time, the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from one (1) to six (6) per

contractor per calendar year. Each January, a summary of the trainees required and the OJT Workforce Development Pilot package will be sent to participating contractors. The number of trainees assigned to each contractor in the summary will increase proportionately not to exceed 6, as shown in the following table. This package will also be provided to contractors as they become newly eligible for the OJT Workforce Development Pilot throughout the remainder of the year. Projects awarded after September 30 will be included in the following year's Program.

The dollar thresholds for training assignments are as follows:

\$4.5 – 8 million=	1 trainee
\$ 9 – 15 million=	2 trainees
\$16 – 23 million=	3 trainees
\$24 – 30 million=	4 trainees
\$31 – 40 million=	5 trainees
\$41 – and above=	6 trainees

### **Training Classifications**

Preference shall be given to providing training in the following skilled work classifications. However, the classifications established are not all-inclusive:

Equipment Operators	Electricians
Laborers	Painters
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has on file common training classifications and their respective training requirements; that may be used by the contractors. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and the number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

Where feasible, 25% percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

## **Records and Reports**

The Contractor shall maintain enrollment in the program and submit all required reports documenting company compliance under these contract requirements. These documents and any other information shall be submitted to the OJT Program Coordinator as requested.

Upon the trainee's completion and graduation from the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

## **Trainee Interviews**

In order to determine the continued effectiveness of the OJT Program in Connecticut, the department will periodically conduct personal interviews with current trainees and may survey recent graduates of the program. This enables the OJT Program Coordinator to modify and improve the program as necessary. Trainee interviews are generally conducted at the job site to ensure that the trainees' work and training is consistent with the approved training program.

## **Trainee Wages**

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

*In no case, will the trainee be paid less than the prevailing rate for general laborer as shown in the contract wage decision (must be approved by the Department of Labor).*

## **Achieving or Failing to Meet Training Goals**

The Contractor will be credited for each trainee currently enrolled or who becomes enrolled in the approved training program and providing they receive the required training under the specific training program. Trainees will be allowed to be transferred between projects if required by the Contractor's schedule and workload. The OJT Program Coordinator must be notified of transfers within five (5) days of the transfer or reassignments by e-mail ([Phylisha.Coles@ct.gov](mailto:Phylisha.Coles@ct.gov)).

Where a contractor does not or cannot achieve its annual training goal with female or minority trainees, they must produce adequate Good Faith Efforts documentation. Good Faith Efforts are those designed to achieve equal opportunity through positive, aggressive, and continuous result-oriented measures. 23 CFR § 230.409(g) (4). Contractors should request minorities and females from unions when minorities and females are under-represented in the contractor's workforce.

Whenever a contractor requests ConnDOT approval of someone other than a minority or female, the contractor must submit documented evidence of its Good Faith Efforts to fill that position with a minority or female. When a non-minority male is accepted, a contractor must continue to attempt to meet its remaining annual training goals with females and minorities.

Where a contractor has neither attained its goal nor submitted adequate Good Faith Efforts documentation, ConnDOT will issue a letter of non-compliance. Within thirty (30) days of receiving the letter of non-compliance, the contractor must submit a written Corrective Action Plan (CAP) outlining the steps that it will take to remedy the non-compliance. The CAP must be approved by ConnDOT. Failure to comply with the CAP may result in your firm being found non-responsive for future projects.

### **Measurement and Payment**

Optional reimbursement will be made to the contractor for providing the required training under this special provision on ConnDOT Federal-Aid funded projects only.

Contractor will be reimbursed at \$0.80 for each hour of training given to an employee in accordance with an approved training or apprenticeship program. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

Reimbursement for training is made annually or upon the trainees completion and not on a monthly basis. No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor.

Program reimbursements will be made directly to the prime contractor on an annual basis. To request reimbursement, prime contractors must complete the Voucher for OJT Workforce Development Pilot Hourly Reimbursement for each trainee in the OJT Program. This form is included in the OJT Workforce Development Pilot package and is available on the Department's web site at:

[www.ct.gov/dot](http://www.ct.gov/dot)

The completed form must be submitted to the Office of Contract Compliance for approval. The form is due on the 15<sup>th</sup> day of January for each trainee currently enrolled and for hours worked on ConnDOT Federal-Aid funded projects only.

## **D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR MANUFACTURERS**

**January 2013**

### **I. ABBREVIATIONS AND DEFINITIONS AS USED IN THIS SPECIAL PROVISION**

A. *CTDOT* means the Connecticut Department of Transportation.

B. *USDOT* means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (“FHWA”), the Federal Transit Administration (“FTA”), and the Federal Aviation Administration (“FAA”).

C. *Broker* means a party acting as an agent for others in negotiating Contracts, Agreements, purchases, sales, etc., in return for a fee or commission.

D. *Contract, Agreement or Subcontract* means a legally binding relationship obligating a seller to furnish supplies or services (including but not limited to, construction and professional services) and the buyer to pay for them. For the purposes of this provision, a lease for equipment or products is also considered to be a Contract.

E. *Contractor* means a consultant, second party or any other entity under Contract to do business with CTDOT or, as the context may require, with another Contractor.

F. *Disadvantaged Business Enterprise (“DBE”)* means a for profit small business concern:

1. That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and
2. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it; and
3. Certified by CTDOT under Title 49 of the Code of Federal Regulations, Part 26, (Title 49 CFR Part 23 of the Code of Federal Regulations for Participation of Disadvantaged Business Enterprise in Airport Concessions)

G. *USDOT-assisted Contract* means any Contract between CTDOT and a Contractor (at any tier) funded in whole or in part with USDOT financial assistance.

H. *Good Faith Efforts (“GFE”)* means all necessary and reasonable steps to achieve a DBE goal or other requirement which by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

I. *Small Business Concern* means, with respect to firms seeking to participate as DBEs in USDOT-assisted Contracts, a small business concern as defined pursuant to Section 3 of the Small Business Act and Small Business Administration (“SBA”) regulations implementing it (13 CFR Part 121) that also does not exceed the cap on average annual gross receipts in 49 CFR Part 26, Section 26.65(b).



J. *Socially and Economically Disadvantaged Individual* means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:

1. Any individual who CTDOT finds, on a case-by-case basis, to be a socially and economically disadvantaged individual.
2. Any individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
  - “Black Americans”, which includes persons having origins in any of the Black racial groups of Africa;
  - “Hispanic Americans”, which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
  - “Native Americans”, which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians.
  - “Asian-Pacific Americans”, which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, or Federated States of Micronesia;
  - “Subcontinent Asian Americans”, which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
  - Women;
  - Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

K. *Commercially Useful Function (“CUF”)* means the DBE is responsible for the execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved with its own forces and equipment. The DBE must be responsible for procuring, determining quantity, negotiating price, determining quality and paying for all materials (where applicable) associated with their work. The DBE must also perform at least 30% of the total cost of its contract with its own workforce.

## **II. ADMINISTRATIVE REQUIREMENTS**

### **A. General Requirements**

A DBE goal percentage equaling **Thirteen percent (13%)** of the Contract value has been established for this Contract. This DBE goal percentage will be applied to the final Contract value to ultimately determine the required DBE goal. If additional work is required, DBE firms should be provided the appropriate opportunities to achieve the required DBE goal.

In order to receive credit toward the Contract DBE goal, the firms utilized as DBE subcontractors or suppliers must be certified as DBEs in the type of work to be counted for credit by CTDOT’s Office of Contract Compliance prior to the date of the execution of the subcontract. Neither CTDOT nor the State of Connecticut’s Unified Certification Program (UCP) makes any representation as to any DBE’s technical or financial ability to perform the work. Prime contractors are solely responsible for performing due diligence in hiring DBE subcontractors.

All DBEs shall perform a CUF for the work that is assigned to them. The Contractor shall monitor and ensure that the DBE is in compliance with this requirement. The Connecticut DBE UPC Directory of certified firms can

be found on the CTDOT website <http://www.ct.gov/dot>. The directory lists certified DBE firms with a description of services that they are certified to perform. Only work identified in this listing may be counted towards the project's DBE goal. A DBE firm may request to have services added at any time by contacting CTDOT's Office of Contract Compliance. No credit shall be counted for any DBE firm found not to be performing a CUF.

Once a Contract is awarded, all DBEs that were listed on the pre-award DBE commitment document must be utilized. The Contractor is obligated to provide the value and items of the work originally established in the pre-award documentation to the DBE firms listed in the pre-award documentation. Any modifications to the pre-award commitment must follow the procedure established in Section II-C.

The Contractor shall designate a liaison officer who will administer the Contractor's DBE program. Upon execution of this Contract, the name of the liaison officer shall be furnished in writing to CTDOT's unit administering the Contract, CTDOT's Office of Contract Compliance and CTDOT's Office of Construction ("OOC"). Contact information for the designated liaison officer shall be furnished no later than the scheduled date for the pre-construction meeting.

**The Contractor shall submit a bi-monthly report to the appropriate CTDOT unit administering the Contract. This report shall indicate what work has been performed to date, with the dollars paid and percentage of DBE goal completed.**

**Verified payments made to DBEs shall be included in this bi-monthly report. A sample form is included on the CTDOT website.**

In addition, the report shall include:

1. A projected time frame of when the remaining work is to be completed for each DBE.
2. A statement by the Contractor either confirming that the approved DBEs are on schedule to meet the Contract goal, or that the Contractor is actively pursuing a GFE.
3. If retainage is specified in the Contract specifications, then a statement of certification that the subcontractors' retainage is being released in accordance with 1.08.01 (Revised or supplemented).

Failure by the Contractor to provide the required reports may result in CTDOT withholding an amount equal to one percent (1%) of the monthly estimate until the required documentation is received.

The Contractor shall receive DBE credit when a DBE, or any combination of DBEs, perform work under the Contract in accordance with this specification.

Only work actually performed by and/or services provided by DBEs which are certified for such work and/or services, as verified by CTDOT, can be counted toward the DBE goal. Supplies and equipment a DBE purchases or leases from the Contractor or its affiliate cannot be counted toward the goal.

Monitoring of the CUF will occur by CTDOT throughout the life of the project. If it is unclear that the DBE is performing the work specified in its subcontract with the prime Contractor, further review may be required. If it is determined that the DBE is not performing a CUF, then the work performed by that DBE will not be counted towards the DBE goal percentage.

## **B. Subcontract Requirements**

The Contractor shall submit to CTDOT's OOC all requests for subcontractor approvals on the standard CLA-12 forms provided by CTDOT. The dollar amount and items of work identified on the CLA-12 form must, at minimum, equal the dollar value submitted in the pre-award commitment. CLA-12 forms can be found at <http://www.ct.gov/dot/construction> under the "Subcontractor Approval" section. All DBE subcontractors must be identified on the CLA-12 form, regardless of whether they are being utilized to meet a Contract goal percentage. A copy of the legal Contract between the Contractor and the DBE subcontractor/supplier, a copy of the Title VI Contractor Assurances and a copy of the Required Contract Provision for Federal Aid Construction Contracts (Form FHWA-1273) (Federal Highway Administration projects only) must be submitted along with a request for subcontractor approval. These attachments cannot be substituted by reference.

If retainage is specified in the Contract specifications, then the subcontract agreement must contain a prompt payment mechanism that acts in accordance with Article 1.08.01 (Revised or supplemented).

If the Contract specifications do not contain a retainage clause, the Contractor shall not include a retainage clause in any subcontract agreement, and in this case, if a Contractor does include a retainage clause, it shall be deemed unenforceable.

In addition, the following documents are to be included with the CLA-12, if applicable:

- An explanation indicating who will purchase material.
- A statement explaining any method or arrangement for utilization of the Contractor's equipment.

The subcontract must show items of work to be performed, unit prices and, if a partial item, the work involved by all parties. If the subcontract items of work or unit prices are modified, the procedure established in Section II-C must be followed.

Should a DBE subcontractor further sublet items of work assigned to it, only lower tier subcontractors who are certified as a DBE firm will be counted toward the DBE goal. If the lower tier subcontractor is a non-DBE firm, the value of the work performed by that firm will not be counted as credit toward the DBE goal.

The use of joint checks between a DBE firm and the Contractor is acceptable, provided that written approval is received from the OOC prior to the issuance of any joint check. Should it become necessary to issue a joint check between the DBE firm and the Contractor to purchase materials, the DBE firm must be responsible for negotiating the cost, determining the quality and quantity, ordering the material and installing (where applicable), and administering the payment to the supplier. The Contractor should not make payment directly to suppliers.

Each subcontract the Contractor signs with a subcontractor must contain the following assurance:

"The subcontractor/supplier/manufacture shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor/subcontractor/supplier/manufacture to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate."

## **C. Modification to Pre-Award Commitment**

Contractors may not terminate for convenience any DBE subcontractor or supplier that was listed on the pre-award DBE commitment without prior written approval of the OOC. This includes, but is not limited to, instances

in which a Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Prior to approval, the Contractor must demonstrate to the satisfaction of the OOC, that it has good cause, as found in 49CFR Part 26.53 (f)(3), for termination of the DBE firm.

Before transmitting its request for approval to terminate pre-award DBE firms to the OOC, the Contractor must give written notice to the DBE subcontractor and include a copy to the OOC of its notice to terminate and/or substitute, and the reason for the notice.

The Contractor must provide five (5) days for the affected DBE firm to respond. This affords the DBE firm the opportunity to advise the OOC and the Contractor of any reasons why it objects to the termination of its subcontract and why the OOC should not approve the Contractor's action.

Once the Contract is awarded, should there be any amendments or modifications of the approved pre-award DBE submission other than termination of a DBE firm, the Contractor shall follow the procedure below that best meets the criteria associated with the reason for modification:

1. If the change is due to a scope of work revision or non-routine quantity revision by CTDOT, the Contractor must notify CTDOT's OOC in writing or via electronic mail that their DBE participation on the project may be impacted as soon as they are aware of the change. In this case, a release of work from the DBE firm may not be required; however the Contractor must concurrently notify the DBE firm in writing, and copy the OOC for inclusion in the project DBE file. This does not relieve the Contractor of its obligation to meet the Contract specified DBE goal, or of any other responsibility found in this specification.
2. If the change is due to a factor other than a CTDOT directive, a request for approval in writing or via electronic mail of the modification from the OOC must be submitted, along with an explanation of the change(s), prior to the commencement of work. The Contractor must also obtain a letter of release from the originally named DBE indicating their concurrence with the change, and the reason(s) for their inability to perform the work. In the event a release cannot be obtained, the Contractor must document all efforts made to obtain it.
3. In the event a DBE firm that was listed in the pre-award documents is **unable** or **unwilling** to perform the work assigned, the Contractor shall:
  - Notify the OOC Division Chief immediately and make efforts to obtain a release of work from the firm.
  - Submit documentation that will provide a basis for the change to the OOC for review and approval prior to the implementation of the change.
  - Use the DBE Directory to identify and contact firms certified to perform the type of work that was assigned to the unable or unwilling DBE firm. The Contractor should also contact CTDOT's Office of Contract Compliance for assistance in locating additional DBE firms to the extent needed to meet the contract goal.

Should a DBE subcontractor be terminated or fail to complete work on the Contract for any reason, the Contractor must make a GFE to find another DBE subcontractor to substitute for the original DBE. The DBE replacement shall be given every opportunity to perform at least the same amount of work under the Contract as the original DBE subcontractor.

If the Contractor is unable to find a DBE replacement:

- The Contractor should identify other contracting opportunities and solicit DBE firms in an effort to meet the Contract DBE goal requirement, if necessary, and provide documentation to support a GFE. (Refer to GFE in Section III.)
- The Contractor must demonstrate that the originally named DBE, who is unable or unwilling to perform the work assigned, is in default of its subcontract, or identify other issues that affected the DBE firm's ability to perform the assigned work. **The Contractor's ability to negotiate a more advantageous agreement with another subcontractor is not a valid basis for change.**

### **III. GOOD FAITH EFFORTS**

The DBE goal is **NOT** reduced or waived for projects where the Contractor receives a Pre-Award GFE determination from the Office of Contract Compliance prior to the award of the Contract. It remains the responsibility of the Contractor to make a continuing GFE to achieve the specified Contract DBE goal. The Contractor shall pursue every available opportunity to obtain additional DBE firms and document all efforts made in such attempts.

At the completion of all Contract work, the Contractor shall submit a final report to CTDOT's unit administering the Contract indicating the work done by and the dollars paid to DBEs. Only verified payments made to DBEs performing a CUF will be counted towards the Contract goal.

Goal attainment is based on the total Contract value, which includes all construction orders created during the Contract. If the Contractor does not achieve the specified Contract goal for DBE participation or has not provided the value of work to the DBE firms originally committed to in the pre-award submission, the Contractor shall submit documentation to CTDOT's unit administering the Contract detailing the GFE made during the performance of the Contract to satisfy the goal.

A GFE should consist of the following, where applicable (CTDOT reserves the right to request additional information):

1. A detailed statement of the efforts made to replace an unable or unwilling DBE firm, and a description of any additional subcontracting opportunities that were identified and offered to DBE firms in order to increase the likelihood of achieving the stated goal.
2. A detailed statement, including documentation of the efforts made to contact and solicit bids from certified DBEs, including the names, addresses, and telephone numbers of each DBE firm contacted; the date of contact and a description of the information provided to each DBE regarding the scope of services and anticipated time schedule of work items proposed to be subcontracted and the response from firms contacted.
3. Provide a detailed explanation for each DBE that submitted a subcontract proposal which the Contractor considered to be unacceptable stating the reason(s) for this conclusion.
4. Provide documentation, if any, to support contacts made with CTDOT requesting assistance in satisfying the specified Contract goal.

5. Provide documentation of all other efforts undertaken by the Contractor to meet the defined goal. Additional documentation of efforts made to obtain DBE firms may include but will not be limited to:
  - Negotiations held in good faith with interested DBE firms, not rejecting them without sound reasons.
  - Written notice provided to a reasonable number of specific DBE firms in sufficient time to allow effective participation.
  - Those portions of work that could be performed by readily available DBE firms.

**In instances where the Contractor can adequately document or substantiate its GFE and compliance with other DBE Program requirements, the Contractor will have satisfied the DBE requirement and no administrative remedies will be imposed.**

#### **IV. PROJECT COMPLETION**

At the completion of all Contract work, the Contractor shall:

1. Submit a final report to CTDOT's unit administering the Contract indicating the work done by, and the dollars paid to DBEs.
2. Submit verified payments made to all DBE subcontractors for the work that was completed.
3. Submit documentation detailing any changes to the DBE pre-award subcontractors that have not met the original DBE pre-award commitment, including copies of the Department's approvals of those changes.
4. Retain all records for a period of three (3) years following acceptance by CTDOT of the Contract and those records shall be available at reasonable times and places for inspection by authorized representatives of CTDOT and Federal agencies. If any litigation, claim, or audit is started before the expiration of the three (3) year period, the records shall be retained until all litigation, claims, or audit findings involving the records are resolved.

If the Contractor does not achieve the specified Contract goal for DBE participation in addition to meeting the dollar value committed to the DBE subcontractors identified in the pre-award commitment, the Contractor shall submit documentation to CTDOT's unit administering the Contract detailing the GFE made during the performance of the Contract to satisfy the goal.

#### **V. SHORTFALLS**

##### **A. Failure to meet DBE goals**

**As specified in (II-A) above, attainment of the Contract DBE goal is based on the final Contract value.** The Contractor is expected to achieve the amount of DBE participation originally committed to at the time of award; however, additional efforts must be made to provide opportunities to DBE firms in the event a Contract's original value is increased during the life of the Contract.

The Contractor is expected to utilize the DBE subcontractors originally committed in the DBE pre-award documentation for the work and dollar value that was originally assigned.

If a DBE is terminated or is unable or unwilling to complete its work on a Contract, the Contractor shall make a GFE to replace that DBE with another certified DBE to meet the Contract goal.

The Contractor shall immediately notify the OOC of the DBE's inability or unwillingness to perform, and provide reasonable documentation and make efforts to obtain a release of work from the firm.

If the Contractor is unable to find a DBE replacement, then the Contractor should identify other contracting opportunities and solicit DBE firms in an effort to meet the Contract DBE goal requirement, if necessary, and provide documentation to support a GFE.

When a DBE is unable or unwilling to perform, or is terminated for just cause, the Contractor shall make a GFE to find other DBE opportunities to increase DBE participation to the extent necessary to at least satisfy the Contract goal.

For any DBE pre-award subcontractor that has been released appropriately from the project, no remedy will be assessed, provided that the Contractor has met the criteria described in Section II-C.

#### **B. Administrative Remedies for Non-Compliance:**

In cases where the Contractor has failed to meet the Contract specified DBE goal or the DBE pre-award commitment, and where no GFE has been demonstrated, then one or more of the following administrative remedies will be applied:

1. A reduction in Contract payments to the Contractor as determined by CTDOT, not to exceed the shortfall amount of the **DBE goal**. The maximum shortfall will be calculated by multiplying the Contract DBE goal (adjusted by any applicable GFE) by the final Contract value, and subtracting any verified final payments made to DBE firms by the Contractor.
2. A reduction in Contract payments to the Contractor determined by CTDOT, not to exceed the shortfall amount of the **pre-award commitment**. The maximum shortfall will be calculated by subtracting any verified final payments made by the Contractor to each DBE subcontractor from the amount originally committed to that subcontractor in the pre-award commitment.
3. A reduction in Contract payments to the Contractor determined by CTDOT for any pre-award DBE subcontractor who has not obtained the dollar value of work identified in the DBE pre-award commitment and has not followed the requirements of Section II-C or for any DBE firm submitted for DBE credit that has not performed a CUF.
4. The Contractor being required to submit a written DBE Program Corrective Action Plan to CTDOT for review and approval, which is aimed at ensuring compliance on future projects.
5. The Contractor being required to attend a Non-Responsibility Meeting on the next contract where it is the apparent low bidder.
6. The Contractor being suspended from bidding on contracts for a period not to exceed six (6) months.

## **VI. CLASSIFICATIONS OTHER THAN SUBCONTRACTORS**

### **A. Material Manufacturers**

Credit for DBE manufacturers is 100% of the value of the manufactured product. A manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.

If the Contractor elects to utilize a DBE manufacturer to satisfy a portion of, or the entire specified DBE goal, the Contractor must provide the OOC with:

- Subcontractor Approval Form (CLA-12) indicating the firm designation,
- An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and
- Substantiation of payments made to the supplier or manufacturer for materials used on the project.

### **B. Material Suppliers (Dealers)**

Credit for DBE dealers/suppliers is limited to 60% of the value of the material to be supplied, provided such material is obtained from an approved DBE dealer/supplier.

In order for a firm to be considered a regular dealer, the firm must own, operate, or maintain a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. At least one of the following criteria must apply:

- To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
- A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business if the person both owns and operates distribution equipment for the products. Any supplementing of the regular dealers' own distribution equipment shall be by long term lease agreement, and not on an ad hoc or contract to contract basis.
- Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph.

If the Contractor elects to utilize a DBE supplier to satisfy a portion or the entire specified DBE goal, the Contractor must provide the OOC with:

- Subcontractor Approval Form (CLA-12) indicating the firm designation,
- An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and
- Substantiation of payments made to the supplier or manufacturer for materials used on the project.

### **C. Brokering**

- Brokering of work for DBE firms who have been listed by the Department as certified brokers is allowed. Credit for those firms shall be applied following the procedures in Section VI-D.
- Brokering of work by DBEs who have been approved to perform subcontract work with their own workforce and equipment is not allowed, and is a Contract violation.



- Firms involved in the brokering of work, whether they are DBEs and/or majority firms who engage in willful falsification, distortion or misrepresentation with respect to any facts related to the project shall be referred to the U.S. DOT, Office of the Inspector General for prosecution under Title 18, U.S. Code, Part I, Chapter 47, Section 1020.

#### **D. Non-Manufacturing or Non-Supplier DBE Credit**

Contractors may count towards their DBE goals the following expenditures with DBEs that are not manufacturers or suppliers:

- Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment materials or supplies necessary for the performance of the Contract, provided that the fee or commission is determined by the OOC to be reasonable and consistent with fees customarily allowed for similar services.
- The fees charged only for delivery of materials and supplies required on a job site when the hauler, trucker, or delivery service is a DBE, and not the manufacturer, or regular dealer of the materials and supplies, and provided that the fees are determined by the OOC to be reasonable and not excessive as compared with fees customarily allowed for similar services.
- The fees or commissions charged for providing bonds or insurance specifically required for the performance of the Contract, provided that the fees or commissions are determined by CTDOT to be reasonable and not excessive as compared with fees customarily allowed for similar services.

#### **E. Trucking**

While technically still considered a subcontractor, the rules for counting credit for DBE trucking firms are as follows:

- The DBE must own and operate at least one fully licensed, insured, and operational truck used on the Contract.
- The DBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures and operates using drivers it employs.
- The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Contract.
- The DBE may lease trucks from a non-DBE firm; however the DBE may only receive credit for any fees or commissions received for arranging transportation services provided by the non-DBE firms. Additionally, the DBE firm must demonstrate that they are in full control of the trucking operation for which they are seeking credit.

#### **VII. Suspected DBE Fraud**

In appropriate cases, CTDOT will bring to the attention of the USDOT any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g. referral to the

Department of Justice for criminal prosecution, referral to USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49 CFR Part 31.

**CONNECTICUT DEPARTMENT OF TRANSPORTATION  
(OFFICE OF CONSTRUCTION)  
BUREAU OF ENGINEERING AND CONSTRUCTION**

This affidavit must be completed by the State Contractor's DBE notarized and attached to the contractor's request to utilize a DBE supplier or manufacturer as a credit towards its DBE contract requirements; failure to do so will result in not receiving credit towards the contract DBE requirement.

State Contract No.

Federal Aid Project No.

Description of Project

I, \_\_\_\_\_, acting in behalf of \_\_\_\_\_,  
(Name of person signing Affidavit) (DBE person, firm, association or corporation)

of which I am the \_\_\_\_\_ certify and affirm that \_\_\_\_\_  
(Title of Person) (DBE person, firm, association or corporation)

is a certified Connecticut Department of Transportation DBE. I further certify and affirm that I have read and understand 49 CFR, Sec. 26.55(e)(2), as the same may be revised.

I further certify and affirm that \_\_\_\_\_ will assume the actual and  
(DBE person, firm, association or Corporation)  
for the provision of the materials and/or supplies sought by \_\_\_\_\_.

If a manufacturer, I operate or maintain a factory or establishment that produces, on the premises, the materials, supplies, articles or equipment required under the contract an of the general character described by the specifications.

If a supplier, I perform a commercially useful function in the supply process. As a regular dealer, I, at a minimum, own and operate the distribution equipment for bulk items. Any supplementing of my distribution equipment shall be by long-term lease agreement, and not on an ad hoc or contract-by-contract basis.

I understand that false statements made herein are punishable by Law (Sec. 53a-157), CGS, as revised).

(Name of Corporation or Firm)

(Signature & Title of Official making the Affidavit)

Subscribed and sworn to before me, this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

Notary Public (Commissioner of the Superior Court)

My Commission Expires \_\_\_\_\_

**CERTIFICATE OF CORPORATION**

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_  
(Official) (President)

of the Corporation named in the foregoing instrument; that I have been duly authorized to affix the seal of the Corporation to such papers as require the seal; that \_\_\_\_\_, who signed said instrument on behalf of the Corporation, was then \_\_\_\_\_ of said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporation powers.

\_\_\_\_\_  
(Signature of Person Certifying)

\_\_\_\_\_  
(Date)

## **ITEM #0100502A – SURVEY GRADE GPS UNIT**

### **Description:**

Under this item, the Contractor shall furnish, configure, install, and maintain Global Positioning System (GPS) units as needed for use by the Engineer and their inspection staff, including the training of the Engineer and their representatives on the use of the GPS units provided.

### **Materials:**

The Contractor shall provide GPS units as needed for use by the Engineer and their inspection staff. Within ten (10) working days after the contract is awarded, the Contractor shall simultaneously submit three (3) proposals for an initial quantity of one (1) GPS unit. The three proposals may be for either new or reconditioned equipment. The Contractor shall maintain the GPS unit and software in good working condition and shall provide replacements due to breakdown, damage, or theft within two (2) work days.

The GPS unit provided shall include, and be licensed to operate, the same versions of GPS planning software, data collection software, navigation software, stakeout software and post processing software. All software provided (including firmware) shall be the most current available from the manufacturer at the time of delivery of the GPS units. GPS unit shall be of the same manufacturer as those used by the Contractor. GPS unit shall not be more than two (2) years old from the date of manufacturing to the time of delivery and shall be replaced every two (2) years with new/upgraded units until project completion. Upon completion of the project, all purchased GPS units shall become the property of the Department.

GPS unit shall be survey grade with the following capabilities:

1. GPS unit shall include both standard USB cable and Bluetooth wireless technology for data transfer.
2. Data shall be capable of being copied onto or from a removable industry standard data storage card (eg: secure digital SD Card). Each GPS Unit shall include 2 data storage cards, each with a minimum capacity of 4 GB.
3. GPS unit shall include the ability to import/export and display point and alignment data which is in XML format, and also import graphics files which are in DGN or DXF format.
4. GPS unit shall have an internal, or modular, rechargeable battery system capable of operating a minimum of 8 hours (may include interchangeable batteries), including the battery charger.
5. GPS unit shall include a hard or soft shell carry case, and all appropriate operation manuals.
6. GPS unit shall be equipped to receive Global Positioning System (GPS), GLONASS and GNSS position data.
7. GPS unit shall be equipped to receive and be capable of utilizing Real Time Kinematics (RTK) correctional data (current version of RTCM format) either through conventional base station(s), or through a private subscription service (Please note that the State of

Connecticut does not have the ability to perform RTK surveys using the Connecticut Continuously Operating Reference Station, or CORS, network). This shall include all necessary communication devices, repeaters and systems, data service plans and communications to meet the minimum required accuracy and not exceed a second latency at the rover. Whichever communication method is utilized by the Contractor to broadcast correctional data, the Contractor shall ensure that the RTK data shall be available at all locations across the entire project site during all hours of construction and inspection operations. In the event that a private subscription service is used for RTK surveys, no baseline shall be longer than 30 km.

8. GPS unit shall include the capability to “localize” both the horizontal and vertical control to local project monumentation (also known as calibrate), while utilizing RTK corrections from a reference network. No other datum than that used for project control shall be used. NAD 83 CORS or NAD 83 / 96 will not be compatible with the existing survey control.
9. GPS unit shall include either an integrated or modular communication device capable of receiving RTK correctional data.
10. GPS unit shall have the ability to display the number of satellites tracked at any one time, and indicate the accuracy quality of each measurement relative to the strength of signals, and the GDOP (Geometric Dilution of Precision).
11. GPS unit shall include dual frequency receivers.
12. All necessary software shall be included (including communication drivers) to allow conversion and export of data in a format suitable for use in Microstation™. Firmware used on the GPS unit shall be verified as interoperable with Microstation / Inroads™ software.
13. The data controller shall permit the user to program and store multiple configurations (also known as user preferences) prior to the actual field measurements. Configurations shall be capable of being stored and recalled in the field.
14. GPS unit shall include one fixed height rover rod of 2.0 m in length, one attachable bipod which is compatible with the rover rod, and one topo shoe.
15. All GPS unit must be capable of tracking 120 channels and must be IP67 rated (for dirt and moisture) at a minimum.

The GPS Data Controller shall meet the following standards:

1. Be capable of being shared by total stations and GPS Receivers.
2. Be capable of Bluetooth, wireless LAN and 900 MHz communication.
3. Run on Microsoft Windows Mobile 5 or Windows CE 6.0 operating system or approved equivalent.
4. Have an alphanumeric keypad.
5. 128 MB SDRAM, 512 MB internal non-volatile storage memory.
6. LI-ion Ion Rechargeable batteries and chargers, with both office and automobile chargers capable of operating for a minimum of 8 hours under all conditions.
7. Meet MIL-STD-810F and Ip67 standards for waterproofing, humidity, sand, dust, vibration and be capable of sustaining a 1.2-meter (4-foot) drop onto hard surfaces.
8. Daylight / Anti-glare compatible touch screen and screen protectors.
9. Have available RS232, USB, compact flash and /or SD card slots.

10. Be capable of data transfers to PC inclusive of all cables, hardware locks etc. for both field and office operations.
11. Be capable of data transfers compatible with existing CTDOT Bentley MicroStation and InRoads CAD operations and standards.
12. Have available industry standard survey coordinate geometry routines.

**Submittals:**

1. Within ten (10) working days after the contract is awarded, the Contractor shall simultaneously submit three (3) proposals for an initial quantity of one (1) GPS unit. The three proposals may be for either new or reconditioned equipment. The cost of the training, as detailed under “Construction Methods” shall be included in the proposals.
2. To verify the age of the GPS units, the Contractor shall provide a dated copy of the manufacturer’s receipt(s) for the purchase, lease or rental of the units.
3. The Contractor shall submit for approval the name, resume and manufacturer’s certification of the person(s) proposed to provide training services to the Engineer and/or their representatives.

**Construction Methods:**

The Contractor shall furnish, configure, install, and maintain the GPS units, and provide the Engineer and/or their representatives with training on the operation of the GPS units. The Contractor shall ensure all GPS units are fully operational and training has been provided prior to Notice to Proceed, Part 2. The Contractor shall choose which communication technique and devices will be used which will insure the consistent and reliable delivery of RTK correctional data to the GPS units.

All GPS surveying shall conform to “Guidelines and Specifications for Global Navigation Satellite System Land Surveys in Connecticut”, as adopted by the Connecticut Association of Land Surveyors, Inc. (78 Beaver Road; Wethersfield, CT USA 06109; [www.ctsurveyor.com](http://www.ctsurveyor.com)) on June 26, 2008.

**GPS Training Provisions:**

The Contractor shall provide training to the Engineer and/or their representatives on the use of the GPS units provided. Prior to Notice to Proceed, Part 2, the Engineer and/or their representatives shall be provided with a minimum of one 8 hour training session for GPS localization/calibration of the project site. In addition, the Engineer and/or their representatives shall be provided with a minimum of two separate 8 hour training sessions on the use and operation of the GPS units during the first year of the contract. One of these two sessions shall occur within one week of delivery of GPS units to the site. The second of the two classes shall occur upon the request of the Engineer. One additional 8 hour minimum training session shall be provided during each additional contract year that the GPS units are in service.

All training shall be performed by a manufacturer-verified trainer who is approved by the Engineer. The training shall occur at the Engineer's Field Office or at a location agreed to by the Engineer.

**Method of Measurement:**

The measurement for payment of the GPS units shall be provided under Article 1.09.04 Extra and Cost-Plus Work. The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made only for actual cost of training, equipment, material, accessories and labor and maintenance.

**Basis of Payment:**

The item "Survey Grade GPS Unit" shall be paid as cost plus work in accordance with Article 1.09.04—Extra and Cost-Plus Work. Payment shall include all authorized training, equipment, material, accessories and labor and maintenance.

## **ITEM #0100602A – WORK AREA ACCESS**

### **Description:**

Under this item, the Contractor shall install and maintain Work Area Access locations throughout the project subject to the review and approval of the Engineer. The Contractor shall be responsible for the layout, design, construction, operation, maintenance and removal of the Work Area Access locations throughout the Project and for the entire Contract duration.

### **Materials:**

The materials for this work shall consist of the following:

1. Anti-Tracking Pad which shall be constructed as shown on the plans and shall include:
  - a. Filter fabric (geotextile) which shall meet the requirements of M.08.01-26, including all materials incidental to and necessary for the installation of geotextile.
  - b. Crushed stone shall meet to the requirements of Article M.01.01 for 2 inch (No. 3) coarse aggregate.

Should there not be sufficient room for pad to clean vehicle tires before re-entering roadways, the contractor shall hose off tires to remove any mud or debris.

2. Temporary Impact Attenuation Systems which shall meet the requirements of Article 18.07.02.
3. Traffic Drums which shall meet the requirements of Article 09.78.02.
4. Temporary Precast Concrete Barrier Curb which shall meet the requirements of Article - 8.22.02.

### **Construction Methods:**

**General Requirements:** At least two (2) weeks prior to the start of construction, the Contractor shall submit in writing to the Engineer a submittal including construction details, a description of the intended use together with an operating plan conforming to Articles 1.08 and 9.71 for each Work Area Access location. Approval of the plans or methods proposed for such construction shall not serve to relieve the Contractor of any responsibility for the successful completion of the project. The plans or methods submitted by the Contractor for approval by the Engineer shall adhere to the following criteria:



1. of the Contractor shall design Work Area Access locations to provide a minimum of one-thousand (1000) feet of Intersection Sight Distance (ISD) for construction vehicles entering or exiting Route 15.
2. The Contractor shall size the Work Area Access locations according to the intended use. Access or egress to/from an open travel lane shall allow for a minimum travel speed of 10 mph less than the posted advisory speed. Access or egress to/from a temporary lane closure shall have no minimum size requirements.
3. Work Area Access locations shall include an anti-tracking pad to prevent material and/or sediments from tracking onto the travelway
4. Existing trees and/or plantings shall be avoided for Work Area Access locations.
5. In areas where Work Area Access locations are required and the minimum requirements cannot be achieved, special considerations may be approved by the Engineer. In such instances the Contractor's submittal shall include an analysis of the ISD, the maximum operating speed for entering or exiting the travelway at the proposed location, as well as a discussion of any special operating procedures necessary to safely utilize the proposed Work Area Access location.

Anti-Tracking Pad: The Contractor shall excavate and grade the Work Area Access locations to the dimensions shown on the approved plan or as directed by the Engineer. Any surplus excavated material shall be handled in accordance with Article 2.02. Geotextile shall be installed as recommended by the manufacturer for the specific use or purpose intended, or as otherwise directed by the Engineer. The Contractor shall spread crushed stone to a minimum depth of 6 inches. The crushed stone shall be shaped to a uniform finished grade.

The Contractor shall keep the Anti-Tracking Pad clean and free of debris. The Anti-Tracking Pad shall be cleaned of all mud and dirt once weekly unless otherwise directed by the Engineer. Maintenance will not be measured for payment but will be included in the lump sum payment for Work Area Access.

Temporary Precast Concrete Barrier Curb: All work associated with the installation and relocation of Temporary Precast Concrete Barrier Curb for a Work Area Access location shall meet the requirements set forth in Article 8.22.03.

Temporary Impact Attenuation Systems: All work associated with the installation and relocation of Temporary Impact Attenuations Systems for a Work Area Access location shall meet the requirements set forth in Article 18.07.03.

Traffic Drums: All work associated with the installation of Traffic Drums for the construction of a Work Area Access shall meet the requirements set forth in Article 09.78.03.

### **Method of Measurement:**

All items mentioned hereunto and associated with the layout, design, construction, maintenance, operation and removal of the Work Area Access including equipment, tools, and labor incidentals necessary for the completion of the work shall be included in the Contract lump sum price for “Work Area Access”.

Contract items which are not exclusive to the Work Area Access locations will be measured as provided elsewhere in the Contract. Additional costs associated with special operating procedures necessary to safely operate the Work Area Access locations will not be measured for payment.

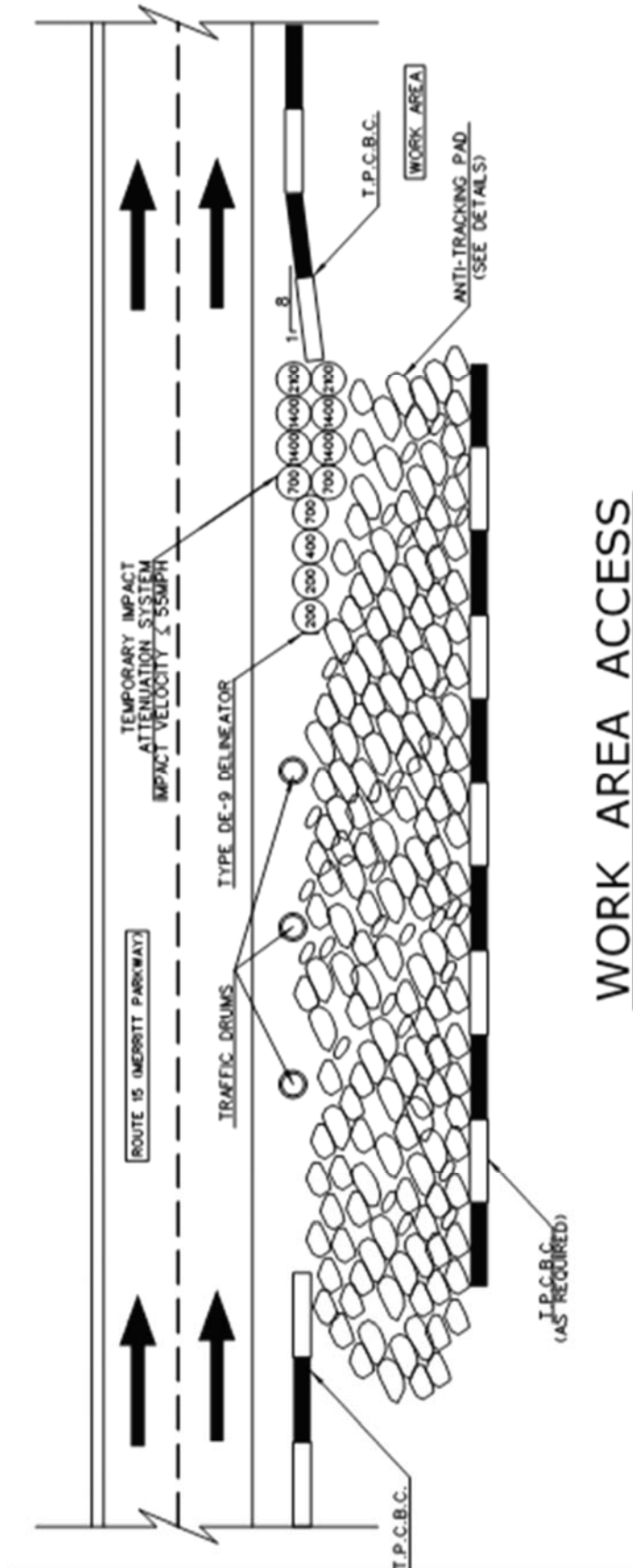
**Basis of Payment:**

Payment for this work will be at the contract lump sum for “Work Area Access”, except as noted above, and shall include all design, layout, furnishing, installation, operation, maintenance, removal, and all materials, equipment, tools, and labor incidental to the completion of this item. The Contractor shall submit a schedule of values to the Engineer for review and approval prior to beginning work on this item.

Pay Item \_\_\_\_\_  
Work Area Access \_\_\_\_\_

Pay Unit  
L.S.

Work Area Access Detail to be included in the plans:



## WORK AREA ACCESS

NOTES:

1. TEMPORARY PRECAST CONCRETE BARRIER CURB (T.P.C.B.C.) TO BE PAID FOR AT THE CONTRACT UNIT PRICE.
2. EXCAVATION REQUIRED FOR INSTALLATION SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE "EARTH EXCAVATION".

**ITEM #0101000A - ENVIRONMENTAL HEALTH AND SAFETY****Description**

Under this Item, the Contractor shall establish protocols and provide procedures to protect the health and safety of its employees and subcontractors as related to the proposed construction activities performed within the Project Limits. Work under this Item consists of the development and implementation of a written Health and Safety Plan (HASP) that addresses the relative risk of exposure to potential hazards present within Project Limits. The HASP shall establish health and safety protocols that address the relative risk of exposure to regulated substances in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Such protocols shall only address those concerns directly related to site conditions.

Note: The Engineer will prepare a site-specific HASP, which is compatible with the Contractor's HASP, and will be responsible for the health and safety of all Project Inspectors, Department employees and consulting engineers.

**Materials**

The Contractor must provide chemical protective clothing (CPC) and personal protective equipment (PPE) as stipulated in the Contractor's HASP during the performance of work in areas identified as potentially posing a risk to worker health and safety, for workers employed by the Contractor and all subcontractors.

**Construction Methods****A. Existing Information**

The Contractor shall utilize all available information and existing records and data pertaining to chemical and physical hazards associated with any of the regulated substances identified in the environmental site investigations to develop the HASP. A list of documents containing this data is found in "Notice to Contractor – Environmental Investigations."

**B. General**

The requirements set forth herein pertain to the provision of workers' health and safety as it relates to proposed Project activities when performed in the presence of hazardous or regulated materials or otherwise environmentally sensitive conditions. THE PROVISION OF WORKER HEALTH AND SAFETY PROTOCOLS, WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS POSED TO CONTRACTOR EMPLOYEES, IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Contractor shall be responsible for the development, implementation and oversight of the HASP throughout the performance of work within the Project Limits. **No intrusive work (e.g., excavation) within the Project Limits shall begin until the HASP is reviewed by the Engineer and is determined to meet the requirements of the specifications. However, the Contract time, in accordance with Article 1.03.08, will begin on the date stipulated in the Notice to Proceed.**

#### C. Regulatory Requirements

All construction related activities performed by the Contractor within the Project Limits shall be performed in conformance with 29 CFR 1926, Safety and Health Regulations for Construction and 29 CFR 1910, Safety and Health Regulations for General Industry. Conformance to 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response (HAZWOPER) may also be required, where appropriate.

#### D. Submittals

An electronic copy of the HASP shall be submitted to the Engineer within four (4) weeks after the Award of Contract or four (4) weeks prior to the start of any intrusive work within the Project Limits, whichever is first, but not before the Award of the Contract.

The HASP shall be developed by a qualified person designated by the Contractor. This qualified person shall be a Certified Industrial Hygienist (CIH), Certified Hazardous Material Manager (CHMM), or a Certified Safety Professional (CSP). He/she shall have review and approval authority over the HASP and be identified as the Health and Safety Manager (HSM). The HASP shall bear the signature of said HSM indicating that the HASP meets the minimum requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

The Engineer will review the HASP within four (4) weeks of submittal and provide written comments as to deficiencies in and/or exceptions to the plan, if any, to assure consistency with the specifications, applicable standards, policies and practices and appropriateness given potential or known site conditions. Items identified in the HASP which do not conform to the specifications will be brought to the attention of the Contractor, and the Contractor shall revise the HASP to correct the deficiencies and resubmit it to the Engineer for determination of compliance with this Item. The Contractor shall not be allowed to commence intrusive work activities until the HASP has been reviewed and determined to conform to the requirements of this specification by the Engineer. **No claim for delay in the progress of work will be considered for the Contractor's failure to submit a HASP that conforms to the requirements of the Contract.**

#### E. HASP Provisions

##### 1. General Requirements

The Contractor shall prepare a HASP covering all Project site work regulated by 29 CFR 1910.120(b)/1926.65(b) to be performed by the Contractor and all subcontractors under this Contract. The HASP shall establish in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed under this Contract. The HASP shall address site-specific safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP shall address, in as much detail as possible, all anticipated tasks, their related hazards and anticipated control measures.

The HASP shall interface with the Contractor's Safety and Health Program. Any portions of the Safety and Health Program that are referenced in the HASP shall be included as appendices to the HASP. All topics regulated by the 29 CFR 1910.120(b) (4) and those listed below shall be addressed in the HASP. **WHERE THE USE OF A SPECIFIC TOPIC IS NOT APPLICABLE TO THE PROJECT, THE HASP SHALL INCLUDE A STATEMENT TO JUSTIFY ITS OMISSION OR REDUCED LEVEL OF DETAIL AND ESTABLISH THAT ADEQUATE CONSIDERATION WAS GIVEN TO THAT TOPIC.**

## 2. Elements

### a. Site Description and Contamination Characterization

The Contractor shall provide a site description and contaminant characterization in the HASP that meets the requirements of 29 CFR 1910.120/1926.65.

### b. Safety and Health Risk Analysis/Activity Hazard Analysis

The HASP shall address the safety and health hazards on this site for every operation to be performed. The Contractor shall review existing records and data to identify potential chemical and physical hazards associated with the site and shall evaluate their impact on field operations. Sources, concentrations (if known), potential exposure pathways, and other factors as noted in CFR 1910.120/126.65, paragraph (c)(7) employed to assess risk shall be described. The Contractor shall develop and justify action levels for implementation of engineering controls and personal protective equipment upgrades and downgrades for controlling worker exposure to the identified hazards. If there is no permissible exposure limit (PEL) or published exposure level for an identified hazard, available information from other published studies may be used as guidance. Any modification of an established PEL must be fully documented.

The HASP shall include a comprehensive section that discusses the tasks and objectives of the site operations and logistics and resources required to complete each task. The

hazards associated with each task shall be identified. Hazard prevention techniques, procedures and/or equipment shall be identified to mitigate each of the hazards identified.

c. Staff Organization, Qualifications and Responsibilities

The HASP shall include a list of personnel expected to be engaged in site activities and certify that said personnel have completed the educational requirements stipulated in 29 CFR 1910.120 and 29 CFR 1926.65, are currently monitored under a medical surveillance program in compliance with those regulations, and that they are fit for work under “Level C” conditions, if required.

The Contractor shall assign responsibilities for safety activities and procedures. An outline or flow chart of the safety chain of command shall be provided in the HASP. Qualifications, including education, experience, certifications, and training in safety and health for all personnel engaged in safety and health functions shall be documented in the HASP. Specific duties of each on-site team member should be identified.

The HASP shall also include the name and qualifications of the individual proposed to serve as Health and Safety Officer (HSO). The HSO shall have full authority to carry out and ensure compliance with the HASP. The Contractor shall provide a competent HSO on-site who is capable of identifying existing and potential hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate or control them. The qualifications of the HSO shall include completion of OSHA 40-hour HAZWOPER training, including current 8-hour refresher training, and 8-hour HAZWOPER supervisory training; a minimum of one year of working experience with the regulated compounds that have been documented to exist within Project Limits; a working knowledge of federal and state safety regulations; specialized training or documented experience (one year minimum) in personal and respiratory protective equipment program implementation; the proper use of air monitoring instruments, air sampling methods and procedures; and certification training in first aid and CPR by a recognized, approved organization such as the American Red Cross.

The primary duties of the HSO shall be those associated with worker health and safety. The Contractor’s HSO responsibilities shall be detailed in the written HASP and shall include, but not be limited to, the following:

- i. Directing and implementing the HASP;
- ii. Ensuring that all Project personnel have been adequately trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or

injury (29 CFR 1926.21). All personnel shall be adequately trained in procedures outlined in the Contractor's written HASP;

- iii. Authorizing Stop Work Orders, which shall be executed upon the determination of an imminent health and safety concern;
  - iv. Contacting the Contractor's HSM and the Engineer immediately upon the issuance of a Stop Work order when the HSO has made the determination of an imminent health and safety concern;
  - v. Authorizing work to resume, upon approval from the Contractor's HSM;
  - vi. Directing activities, as defined in the Contractor's written HASP, during emergency situations; and
  - vii. Providing personal monitoring where applicable, and as identified in the HASP.
- d. Employee Training Assignments

The Contractor shall develop a training program to inform employees, supplier's representatives, and official visitors of the special hazards and procedures (including PPE, its uses and inspections) to control these hazards during field operations. Official visitors include, but are not limited to, Federal Agency Representatives, State Agency Representatives, Municipal Agency Representatives, Contractors, subcontractors, etc. This program shall be consistent with the requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

e. Personal Protective Equipment

The HASP shall include the requirements and procedures for employee protection and should include a detailed section on respiratory protection. The Contractor shall describe in detail and provide appropriate PPE to ensure that workers are not exposed to levels greater than the action level for identified hazards for each operation stated for each work zone. The level of protection shall be specific for each operation and shall be in compliance with all requirements of 29 CFR 1910 and 29 CFR 1926. The Contractor shall provide, maintain, and properly dispose of all PPE.

f. Medical Surveillance Program

All on-site Contractor personnel engaged in 29 CFR 1910.120/1926.65 operations shall have medical examinations meeting the requirements of 29 CFR 1910.120(f) prior to commencement of work.



The HASP shall include certification of medical evaluation and clearance by the physician for each employee engaged in 29 CFR 1910.120/1926.65 operations at the site.

g. Exposure Monitoring/Air Sampling Program

The Contractor shall submit an Air Monitoring Plan as part of the HASP, which is consistent with 29 CFR 1910.120, paragraphs (b)(4)(ii)(E), (c)(6), and (h). The Contractor shall identify specific air sampling equipment, locations, and frequencies in the air-monitoring plan. Air and exposure monitoring requirements shall be specified in the Contractor's HASP. The Contractor's designated certified safety professional (e.g., CIH, CHMM, CSP) shall specify exposure monitoring/air sampling requirements after a careful review of the contaminants of concern and planned site activities.

h. Site Layout and Control

The HASP shall include a map showing work zone delineation (support, contamination, reduction and exclusion), on/off-site communications, site access controls, and security (physical).

i. Communications

Written procedures for routine and emergency communications procedures shall be included in the Contractor's HASP.

j. Personal Hygiene, Personal Decontamination and Equipment Decontamination

Decontamination facilities and procedures for PPE, sampling equipment, and heavy equipment shall be discussed in detail in the HASP.

k. Emergency Equipment and First Aid Requirements

The Contractor shall provide appropriate emergency first aid kits and equipment suitable to treat exposure to the hazards identified, including chemical agents. The Contractor will provide personnel that have certified first aid/CPR training on-site at all times during site operations.

l. Emergency Response Plan and Spill Containment Program

The Contractor shall establish procedures in order to take emergency action in the event of immediate hazards (i.e., a chemical agent leak or spill, fire or personal injury). Personnel and facilities supplying support in emergency procedures will be identified. The emergency equipment to be present on-site and the Emergency Response Plan procedures, as required 29 CFR 1910.120, paragraph (1)(1)(ii) shall be specified in the

Emergency Response Plan. The Emergency Response Plan shall be included as part of the HASP. This Emergency Response Plan shall include written directions to the closest hospital as well as a map showing the route to the hospital from the Project location.

m. Logs, Reports and Record Keeping

The Contractor shall maintain safety inspections, logs, and reports, accident/incident reports, medical certifications, training logs, monitoring results, etc. All exposure and medical monitoring records are to be maintained according to 29 CFR 1910 and 29 CFR 1926. The format of these logs and reports shall be developed by the Contractor to include training logs, daily logs, weekly reports, safety meetings, medical surveillance records, and a phase-out report. These logs, records, and reports shall be maintained by the Contractor and be made available to the Engineer.

The Contractor shall immediately notify the Engineer of any accident/ incident. Within two working days of any reportable accident, the Contractor shall complete and submit an accident report to the Engineer.

n. Confined Space Entry Procedures

Confined space entry procedures, both permit required and non permit required, shall be discussed in detail.

o. Pre-Entry Briefings

The HASP shall provide for pre-entry briefings to be held prior to initiating any site activity and at such other times as necessary to ensure that employees are apprised of the HASP and that this plan is being followed.

p. Inspections/Audits

The HSM or HSO shall conduct inspections or audits to determine the effectiveness of the HASP. The Contractor shall correct any deficiencies in the effectiveness of the HASP.

F. HASP Implementation

The Contractor shall implement and maintain the HASP throughout the performance of work. In areas identified as having a potential risk to worker health and safety, and in any other areas deemed appropriate by the HSO, the Contractor shall be prepared to immediately implement the appropriate health and safety measures, including but not limited to the use of PPE, and engineering and administrative controls.

If the Engineer observes deficiencies in the Contractor's operations with respect to the HASP, they shall be assembled in a written field directive and given to the Contractor. The Contractor shall immediately correct the deficiencies and respond, in writing, as to how each was corrected. Failure to bring the work area(s) and implementation procedures into compliance will result in a Stop Work Order and a written directive to discuss an appropriate resolution(s) to the matter. When the Contractor demonstrates compliance, the Engineer shall remove the Stop Work Order. If a Stop Work Order has been issued for cause, no delay claims on the part of the Contractor will be honored.

Disposable CPC/PPE (i.e. disposable coveralls, gloves, etc.) that come in direct contact with hazardous or potentially hazardous material shall be placed into 55 gallon USDOT 17-H drums and disposed of in accordance with federal, state, and local regulations. The drums shall be temporarily staged and secured within a secure area of the Project, to be approved by the Engineer, for management by others.

#### G. HASP Revisions

The HASP shall be maintained on-site by the Contractor and shall be kept current with construction activities and site conditions under this Contract. The HASP shall be recognized as a flexible document which shall be subject to revisions and amendments, as required, in response to actual site conditions, changes in work methods and/or alterations in the relative risk present. All changes and modifications shall be signed by the Contractor's HSM and shall require the review and acceptance by the Engineer prior to the implementation of such changes.

Should any unforeseen hazard become evident during the performance of the work, the HSO shall bring such hazard to the attention of the Contractor and the Engineer as soon as possible. In the interim, the Contractor shall take action, including Stop Work Orders and/or upgrading PPE as necessary, to re-establish and maintain safe working conditions and to safeguard on-site personnel, visitors, the public and the environment. The HASP shall then be revised/amended to reflect the changed condition.

#### Method of Measurement

- A. Within thirty (30) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for acceptance a breakdown of its lump sum bid price for this Item detailing:
  1. The development costs associated with preparing the HASP in accordance with these Specifications.
  2. The cost per month for the duration of the Project to implement the HASP and provide the services of the HSM and the HSO.
- B. If the lump sum bid price breakdown is unacceptable to the Engineer, substantiation showing that the submitted costs are reasonable shall be required.

C. Upon acceptance of the payment schedule by the Engineer, payments for work performed will be made as follows:

1. The lump sum development cost will be certified for payment.
2. The Contractor shall demonstrate to the Engineer monthly that the HASP has been kept current and is being implemented and the monthly cost will be certified for payment.
3. Any month where the HASP is found not to be current or is not being implemented, the monthly payment for the Environmental Health and Safety Item shall be deferred to the next monthly payment estimate. If the HASP is not current or being implemented for more than thirty calendar days, there will be no monthly payment.
4. Failure of the Contractor to implement the HASP in accordance with this Specification, shall result in the withholding of all Contract payments.

### **Basis of Payment**

This work shall be paid for at the Contract lump sum price for “ENVIRONMENTAL HEALTH AND SAFETY,” which shall include all materials, tools, equipment and labor incidental to the completion of this Item for the duration of the Project to maintain, revise, monitor and implement the HASP. Such costs include providing the services of the HSM and HSO, Contractor employee training, CPC, PPE, disposal of PPE and CPC, medical surveillance, decontamination facilities, engineering controls, monitoring, and all other HASP protocols and procedures established to protect the Health and Safety for all on-site workers.

#### Pay Item

Environmental Health and Safety

#### Pay Unit

Lump Sum

## **ITEM #0101117A - CONTROLLED MATERIALS HANDLING**

### **Description:**

Work under this Item is intended to provide specific procedural requirements to be followed by the Contractor during the management of Controlled Materials excavated within the Project Limits that cannot be reused on the Project, as noted in the *Notice to Contractor – Environmental Investigations*. This supplements Specifications Sections 2.02, 2.03, 2.05, and 2.06, and Contract Special Provisions for excavation wherever contaminated materials are encountered.

All material excavated within the Project Limits, excluding existing pavement structure (asphalt and subbase), ballast, rock, ledge, and concrete, shall be reused on the Project unless deemed unsuitable by the Engineer due to physical indications of contamination or geotechnical characteristics of the material. Such unsuitable material, and surplus excavated material that cannot otherwise be reused on the Project, shall henceforth be considered Controlled Materials and transported off-site to the Department's temporary waste stockpile area (WSA) depicted on Drawing No. ENV-02 in the Project Plans.

Work under this Item shall include the restoration of the existing, designated temporary WSA bins (as necessary), and include the transportation and stockpiling, covering, securing, and maintaining of the stockpiled materials throughout the duration of the Project. The Controlled Materials staged in the WSA will require disposal at an approved treatment/recycling/disposal facility in accordance with *Item No. 0202315A - Disposal of Controlled Materials*. Note that no excavated materials may be reused once it has been transferred to the WSA.

Excavated material that is deemed suitable for reuse shall be managed at the point of origin for use as backfill. In instances where such material cannot be reused directly at the point of origin or within several days of excavation, the material shall be managed, in a manner approved by the Engineer, to minimize generation of fugitive dust and erosion, and prevent physical interference with other Project activities.

### **Materials:**

The required materials shall conform to the requirements of the Contract.

Two-inch ballast stone shall be utilized to restore and maintain the anti-tracking pad located at the existing WSA.

Polyethylene sheeting for covering stockpiled excavated materials shall be a minimum thickness of six (6) mils, 20 feet wide by 100 feet long.

Polyethylene sheeting for storage bin underlayment shall be a minimum thickness of 10 mils and 20 feet wide.

Runoff control barrier shall be constructed with hay bales (14 inches by 36 inches by 18 inches, typical).

Sandbags used to secure polyethylene covers shall be at least 30 pounds.

Sorbent boom shall be eight inches in diameter and 10 feet long, and possess petrophilic and hydrophobic properties. Sorbent booms shall also have devices (e.g., clips, clasps, etc.) for connection to additional lengths of boom.

### **Construction Methods:**

#### **A. General**

The Contractor shall maintain the WSA's anti-tracking pad throughout the duration of the Project and restore the pad with clean stone when it has lost its ability to hold soil, or when otherwise directed by the Engineer. In addition, any existing asphalt pavement and/or polyethylene underlayment within the individual bins that is damaged by the Contractor shall be repaired/replaced in kind before additional material is stored in them.

When Controlled Materials are managed during the course of the work, health and safety provisions shall conform to the appropriate sections of the Contract. Provisions may include implementation of engineering controls, air and personal monitoring, the use of chemical protective clothing (CPC), personal protective equipment (PPE), and decontamination procedures.

Unless otherwise directed by the Engineer, at the time excavated materials are designated by the Engineer as unsuitable or surplus, that Controlled Materials shall be transported directly from their point of origin on the Project to the WSA. The material shall be placed in the WSA bin and covered with polyethylene sheeting. The Contractor shall plan excavation activities in consideration of the material testing and disposal requirements of the applicable Contract item. **No claims for delay shall be considered based on the Contractor's failure to coordinate excavation activities as specified herein.**

The Engineer will sample the stockpiled Controlled Materials at a frequency and for the constituents to meet the acceptance criteria of the treatment/recycling/disposal facilities submitted by the Contractor. The Contractor is hereby notified that laboratory turnaround time is expected to be fifteen (15) working days. Turnaround time is the period of time beginning when the Contractor notifies the Engineer which facility it intends to use and that the bin within the WSA is full and is ready for sampling and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended treatment/recycling/disposal facility may prompt the need to resample and will therefore restart the time required for laboratory turnaround. The laboratory will furnish such results to the Engineer. Upon receipt, the Engineer will make available to the Contractor the results of the final waste characterization determination. **No claims for delay shall be considered based on the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

## B. Transportation and Stockpiling

In addition to following all pertinent federal, state and local laws or regulatory agency policies, the Contractor shall adhere to the following precautions during transport of non-hazardous Controlled Materials:

1. Transported Controlled Materials are to be covered prior to leaving the point of generation (on-site) and are to remain covered until their arrival at the WSA;
2. All vehicles departing the Project Limits are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume and content of materials carried. Transportation of material to the WSA shall be along the route depicted on Drawing No. ENV-03 in the Project Plans, unless otherwise directed by the Engineer;
3. All vehicles shall have secure, watertight containers free of defects for material transportation;
4. No material deemed to be unsuitable or surplus shall leave the Project Limits until there is adequate laydown area prepared in the WSA; and
5. Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported to and received at the WSA.

Any required construction and/or modifications to the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. Polyethylene sheeting or bituminous concrete shall underlay all Controlled Materials in the WSA to ensure that seepage of material or water from the WSA is prevented. Measures shall be implemented to divert rainfall away from the WSA.

Placement of sorbent boom along the perimeter of the WSA shall be conducted when soil is saturated with petroleum product.

Excavated materials shall be staged as directed by the Engineer. Controlled Materials transported to the WSA shall be managed in accordance with the Connecticut Department of Energy and Environmental Protection's (CTDEEP) *General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)*.

## C. WSA Maintenance

The Contractor shall provide all necessary materials, equipment, tools, and labor for anticipated activities within the WSA. Such activities include, but are not limited to, handling and management of stockpiles and drummed CPC/PPE; uncovering and recovering stockpiles; maintenance of the WSA; replacement of damaged components (e.g., sand bags, polyethylene sheeting, anti-track pad, etc.); and waste inventory record management. The Contractor shall manage all soil and other materials handled in the WSA in such a way as to minimize tracking

of potential contaminated materials across the WSA, and off-site, and minimize dust generation.

Each stockpile shall be securely covered when not in active use, with a cover of sufficient size to prevent generation of dust and infiltration of precipitation. The polyethylene sheeting shall be secured with sandbags to prevent wind erosion.

The Contractor shall manage/stage stockpiled material within the WSA bin(s) as necessary, or otherwise directed by the Engineer, to ensure efficient use of bin space and enable effective maintenance of stockpile covers.

The staged stockpiles shall be inspected at least daily by the Contractor to ensure that the cover and containment have not been damaged and that there is no apparent leakage from the pile. If the cover has been damaged, or there is evidence of leakage from the piles, the Contractor shall immediately replace the cover or containment as needed to prevent the release of materials from the piles to the environment.

An inventory of stockpiled materials and drummed CPC/PPE shall be conducted on a daily basis. Inventory records shall indicate the approximate volume of material/drums stockpiled per day; the approximate volume of material/drums stockpiled to date; material/drums loaded and transported off-site for disposal; and identification of stockpiles relative to their points of generation.

Following the removal of all stockpiled Controlled Materials, residuals shall be removed from all surfaces of the WSA as directed by the Engineer. This operation shall be accomplished using dry methods such as shovels, brooms, mechanical sweepers or a combination thereof. Residuals shall be disposed of as Controlled Materials.

#### D. Dewatering

Dewatering activities shall conform to Items in pertinent articles of the Contract.

#### E. Decontamination

All equipment shall be provided to the work site free of contamination. The Engineer may prohibit from the site any equipment that in their opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted at an area designated by the Engineer and may be required prior to equipment and supplies leaving the Project or between stages of the work.



Dry decontamination procedures are recommended. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If dry methods are unsatisfactory as determined by the Engineer, the Contractor shall modify decontamination procedures as required, subject to the Engineer's approval.

#### F. Dust Control

The Contractor shall implement a fugitive dust suppression program in accordance with the Contract to prevent the off-site migration of particulate matter and/or dust resulting from excavation, loading and other handling operations associated with Controlled Materials. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. The Contractor shall:

1. Employ reasonable fugitive dust suppression techniques.
2. Visually observe the amounts of particulate and/or fugitive dust generated during the handling of Controlled Materials. If the apparent amount of fugitive dust and/or particulate matter is not acceptable to the Engineer, the Engineer may direct the Contractor to implement corrective measures at his discretion, including, but not limited to, the following:
  - a. Apply water to pavement surfaces;
  - b. Apply water to equipment and excavation faces; and
  - c. Apply water during excavation, loading, and dumping.

#### G. Permit Compliance

The Contractor shall comply with the terms and conditions of the CTDEEP *General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)*, including the General Operating Conditions and the Specific Operating Conditions, except that the Engineer will conduct all soil/sediment characterization and perform all recordkeeping. In particular, the Contractor shall:

1. Operate, maintain and repair the existing temporary WSA in conformance with the requirements of the General Permit.
2. Maintain a communications system capable of summoning fire, police, and/or other emergency service personnel.
3. Separate incidental excavation waste (debris) to the satisfaction of the receiving facility or to an extent that renders the Controlled Materials suitable for its intended reuse.
4. Isolate and temporarily store incidental waste in a safe manner prior to off-site transport to a facility lawfully authorized to accept such waste.

5. Not store more than 100 cubic yards of incidental waste at any one time.
6. Sort, separate and isolate all hazardous waste from contaminated soil and/or sediment.
7. Prevent or minimize the transfer or infiltration of contaminants from the stockpiles to the ground as detailed in “B. Transportation and Stockpiling” above.
8. Securely cover each stockpile of soil as detailed in “C. WSA Maintenance” above.
9. Minimize wind erosion and dust transport as detailed in “F. Dust Control” above.
10. Install, maintain and use anti-tracking measures at the Project Site and at the WSA to ensure the vehicles do not track soil onto a public roadway at any time.
11. Instruct the transporters of contaminated soil and/or sediment of best management practices for the transportation of such soil (e.g., properly covered loads, removing loose material from dump body, etc.).
12. Implement appropriate traffic controls to mitigate unsafe traffic impacts where vehicles transporting Controlled Materials enter or exit from the active work zones and/or the WSA.
13. Ensure that, except as allowed in section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies, trucks are not left idling for more than three (3) consecutive minutes.

#### **Method of Measurement:**

The work of “CONTROLLED MATERIALS HANDLING” will be measured for payment by the number of cubic yards of unsuitable and/or surplus Controlled Materials excavated within the Project Limits and transported to the WSA. This measurement shall be in accordance with and in addition to the quantity measured for payment of the applicable excavation item in Specification Sections 2.02, 2.03, 2.05, 2.06, or the Contract Special Provisions, as applicable. Excess excavations made by the Contractor beyond the payment limits specified in the Contract will not be measured for payment and the Contractor assumes all costs associated with the appropriate handling, management and disposal of such material.

Equipment decontamination, the collection of residuals, and the collection and disposal of liquids generated during equipment decontamination activities will not be measured separately for payment.

#### **Basis of Payment:**

This work shall be paid for at the Contract unit price, which shall include restoration of the existing WSA anti-tracking pad; maintenance/repair of the existing WSA bin structures, transportation from the excavation site to the existing WSA; unloading, stockpiling and staging (as necessary) of Controlled Materials in the WSA; covering, securing, and maintaining the individual stockpiles

within the WSA throughout the duration of the Project; and all tools, equipment, material and labor incidental to this work.

This price shall also include equipment decontamination; the collection of residuals generated during decontamination and placement of such material in the WSA; and the collection and disposal of liquids generated during equipment decontamination activities.

All materials, labor and equipment associated with compliance with the *General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)* will not be measured separately but will be considered incidental to Item No. 0101117A - *Controlled Materials Handling*.

Pay Item

Pay Unit

Controlled Materials Handling

CY

## **ITEM #0201001A – CLEARING AND GRUBBING**

*Amend this section as follows:*

### **Article 2.01.01 – Description is supplemented by the following:**

The Contractor shall remove and dispose of abandoned utility poles within the project limits where such items are identified on the plans for removal.

### **Article 2.01.03 - Construction Method is supplemented as follows:**

Prior to the start of clearing and grubbing operations, a field meeting shall be held to evaluate trees located 10' beyond the slope limits shown on the plans. This evaluation shall identify those trees impacted by construction activities damaging the trees and/or their associated root systems. These affected trees shall be designated for removal by the Department. Those in attendance shall include: the Contractor, the Engineer, the Designer, the Landscape Designer, and the District Environmental Coordinator. Additionally, this meeting shall evaluate all trees located beyond 10' of the face of existing and proposed rock outcrops for removal.

The Contractor shall remove abandoned concrete foundations to an elevation approximately 2' below the proposed final grade and the abandoned utility poles shall be completely removed. After removing miscellaneous abandoned foundations or utility poles, the Contractor shall backfill the hole to existing grade with suitable material matching the composition of the surrounding grade.

The Contractor shall dispose of abandoned concrete foundations in conformance with all applicable state and federal regulations.

The Contractor shall dispose of the abandoned utility pole in accordance with the item "Disposal of Contaminated Railroad Ties".

### **Article 2.01.05 – Basis of Payment is supplemented by the following:**

All work associated with the removal and disposal of designated trees located 10' beyond the slope limit will be paid for at the contract lump sum price for "Clearing and Grubbing".

All work associated with the removal and disposal of abandoned concrete foundations and abandoned utility poles will be paid at the contract lump sum price for "Clearing and Grubbing".

The Contractor shall submit to the Department a schedule of payment values for review and comment prior to payment.

## **ITEM #0202100A - ROCK EXCAVATION**

### **Subarticle 2.02.02-1 Classification:**

*Add the following to the third paragraph;*

Rock Excavation, as called for in this project and specifications, is to be accomplished within a restrictive work area and with restrictive time constraints.

Rock Excavation shall include furnishing all labor, equipment, materials and services and performing operations required to fragment rock utilizing controlled blasting techniques such that damage is prevented to adjacent structures, utilities, and property such that resulting ground vibrations are maintained below the specified maximum levels.

The Contractor shall also conduct blast monitoring of every blast round required to excavate rock during the conduct of construction utilizing monitoring procedures and equipment specified in this Section.

### **Subarticle 2.02.03-4 Excavation of Rock:**

*Add the following to the end of the subarticle;*

#### **Submittals:**

Advance Submittals: The Contractor shall submit the following information to the Engineer at least two (2) weeks prior to commencing drilling and blasting operations:

1. Sequence and schedule of blasting rounds, including the general method of developing the excavation, lift heights, starting locations and estimated start dates, and estimated progress rates.
2. Specifics of a typical production round and perimeter control to be implemented at the highest rock cut for each area of rock excavation.
3. For each of the typical blast rounds in 2. Above, include the following blast round details:
  - a. Diameter, spacing, burden, depth, tip elevation, and orientation of each blast hole for each round design.
  - b. Manufacturer and amount (in terms of weight and number of cartridges) of explosives and distribution of charge to be used within each hole, on each delay, and the total for the blast.

- c. Manufacturer and type of detonators; delay pattern wiring diagram for the round: type and capacity of firing source, size, type and location of safety switches and lightning gap.
  - d. Type and location of stemming to be used in holes.
  - e. Calculations of anticipated vibration levels at nearest adjacent structure.
- 4. Methods of matting or covering of the blast area to prevent flyrock and excessive airblast overpressure.
- 5. Written evidence of the licensing, experience and qualifications of the blaster(s) who will be directly responsible for the loading of each shot and for firing it.
- 6. Name and qualifications of the person(s) responsible for designing and directing the blasting.
- 7. Name and qualifications of the person(s) responsible for monitoring and reporting blast vibrations.
- 8. Details of an audible advance signal system to be employed at the job site.
- 9. Instrumentation that the Contractor proposes to use to monitor vibrations and airblast overpressure levels complete with performance specifications.
- 10. Recent calibration certificate(s) for the proposed blast monitoring instrumentation.
- 11. Copy of the blasting permit(s) obtained to conduct blasting on the site.
- 12. Copies of all Pre-blast condition surveys performed.

Progress Submittals:

Within 24 hours following each blast, the Contractor shall submit to the Engineer, a Blast Monitoring Report. Each Blast Monitoring Report shall include the following applicable items:

- 1. Blast round data, as indicated above.
- 2. Blast Monitoring Location Plan, indicating the location from the blast to monitoring locations.
- 3. Vibration and airblast overpressure data from each seismograph, including a copy of the strip chart (or other permanent record of velocity/time waveform) with calibration and monitoring record marked with the date, time and location of the blast.

Review by the Engineer of blast designs and techniques shall not relieve the Contractor of responsibility for the accuracy, adequacy and safety of the blasting, exercising proper supervision and field judgment and producing the results within the blasting limits required by these Specifications.

#### Personnel Requirements:

Persons responsible for blasting shall be licensed blasters in the State of Connecticut and shall have had acceptable experience in similar excavations in rock and controlled blasting techniques.

Blast monitoring shall be conducted by persons trained in the use of a seismograph and records shall be analyzed and results reported by persons familiar with analyzing and reporting the frequency content of a seismograph record.

#### Peak Particle Velocity (PPV) Limits:

The Contractor shall conduct all blasting activity in such a manner that the maximum peak particle velocity does not exceed the following limits:

<u>Distance from Blast to Structure</u>	<u>Max. PPV mm/sec (in/sec)</u>
<45.7m (<150 ft)	50.8 (2.0)
45.7m - 91.4m (150 ft - 300 ft)	31.8 (1.25)
>91.4m (>300 ft)	12.7 (0.5)

#### Blast Vibration Monitoring:

The Contractor shall monitor peak particle velocities resulting from each blast, at a location adjacent to the nearest structure from the blast.

All instrumentation proposed for use on the project shall have been calibrated within the previous six (6) months to a standard which is traceable to the National Bureau of Standards. Characteristics of required instrumentation are listed below:

Measure the three (3) mutually perpendicular components of particle velocity in directions vertical, radial, and perpendicular to the vibration source. Measure and display the maximum peak particle velocity component and airblast overpressure. These readings must be displayed and be able to be read in the field, immediately after each blast.

Furnish a permanent time history record of particle velocity and airblast overpressure waveforms.

Compliance with the peak particle velocity limits as set forth in this specification shall not relieve the Contractor of responsibility for damage resulting from its blasting operation.

General Blasting Procedures:

The time during which explosives may be used is must be in compliance with lane closure allowances as put forth in Section 1.08 - Prosecution and Progress. In addition, the use of explosives is restricted to daylight hours. In order to minimize traffic disruptions, the Contractor shall schedule blasting such that any two successive blasts detonated anywhere on the project are separated by at least 2 hours. The Contractor's blasting operations shall be performed using extreme care to minimize the inconvenience and interruption to traffic and damage to the pavement, structures, guardrail, median fence and surrounding areas.

Immediately after blasting, the Contractor shall have sufficient equipment available at the site to clear the pavement of blastrock as noted below. The Contractor shall also use, as required, a mechanical sweeper to control dust and small stones.

The Contractor shall advise the Engineer at least two working days in advance of the dates on which he proposed to perform blasting operations, giving the approximate hour, for the Engineer's approval.

The Contractor will notify the Engineer by noon of the day prior to any day he plans not to blast where the weekly schedule shows a day of blasting. This does not include changes due to weather or unexpected equipment breakdowns.

If at any time the Engineer determines that the Contractor's rock excavation program does not comply with the requirements of this specification, the Engineer may direct the Contractor to halt all rock excavation activities and have the Contractor submit a revised rock excavation procedure for review and approval by the Engineer.

The excavation of rock shall include any and all methods, including but not limited to, pre-splitting, blasting and mechanical methods, required to remove the rock as defined.

**Subarticle 2.02.04 Method of Measurement:**

Subarticle 2.02.04 is being deleted in its entirety and replaced with the following:

**2.02.04—Method of Measurement:** Payment lines for earth excavation shall coincide with the slope and subgrade lines or the top of the payment lines for ditch excavation, whichever applies, as shown on the plans or as ordered.

Payment lines for unsuitable material excavation shall be the area designated by the plans, special provisions or the Engineer as unsuitable material below the subgrade in cut



sections, below the original ground line in fill sections and beyond the normal payment lines for ditch and channel excavation.

Unsuitable material within the slope and subgrade lines or the top of the normal payment lines for ditch and channel excavation shall be measured as earth excavation, ditch excavation or channel excavation.

Any stockpiling, drying or re-excavation necessary to utilize such material on the project shall not be measured for payment, but shall be included in the payment for unsuitable material.

Also measured for payment shall be the volume of earth moved in cutting or plowing of steps on steep slopes, as described in Article 2.02.03, and the removal of existing flexible pavement where shown on the plans or ordered by the Engineer.

The stockpiling, re-excavation and final placement of material will not be measured for payment, unless such has been made a part of the contract or unless the State has created conditions different from those that existed or could have been foreseen or anticipated when the contract was bid.

Payment limits for Channel Excavation—Earth shall coincide with the side slopes and bottom of channel as shown on the plans or as directed.

Payment lines for Channel Excavation-Rock shall coincide with the depth shown on the plans or to the depth ordered. Payment lines for slopes will be extended to a limit of 12 inches (300 millimeters) outside of and parallel to the slope lines shown on the plans, or as ordered, to include rock actually removed within this limit. In case of natural faults or fissures which make the removal of additional rock necessary for reasons of safety, or which produce slides clearly not attributable to the Contractor's method of operation, the slope payment lines will be fixed to coincide with the natural faults or fissures of the rock.

Payment lines for rock excavation, where presplitting bedrock is required by these specifications, will extend to the slope and depth line shown on the plans or as directed, to include only the rock actually removed within this limit.

Payment lines for rock excavation, where presplitting bedrock is not required by these specifications, shall coincide with the depth shown on the plans or to the depth directed; and payment lines for the slopes will be extended to a limit of 1 foot (300 millimeters) outside of and parallel to the slope lines shown on the plans, or as directed, to include rock actually removed within this limit. Where removal of rock is necessary for reasons of safety or due to conditions clearly not attributable to the Contractor's method of operation, the payment lines will be fixed to coincide with limits ordered by the Engineer.

Presplitting of bedrock performed in accordance with these specifications will not be measured for payment.

Where removal of rock is necessary for reason of safety or due to conditions clearly not attributable to the Contractor's methods of operation, the payment lines for rock excavation where presplitting is required will be fixed to coincide with limits ordered by the Engineer. Payment lines for Rock Excavation (No Explosives), where mechanical means of removal are required by these specifications, will extend to the slope and depth line(s) shown on the plans or as directed, to include only the rock actually removed within these limits.

Concrete and masonry foundation walls, or portions thereof, to be removed will be measured for payment by the volume in cubic yards (cubic meters), in place, before removal.

Existing concrete pavement and concrete base over 5 square yards (4 square meters), including any bituminous surfacing material immediately thereon, shall be measured in place before removal.

Existing concrete and cement masonry structures over 1 cubic yard (1 cubic meter), shall be measured in place before removal.

When rock is encountered, and its removal is to be paid for as "Rock Excavation" or "Channel Excavation—Rock," the Contractor shall strip or expose the rock to such an extent that in the Engineer's opinion the necessary measurements can be taken.

Prior to beginning any rock excavation activities, the Contractor shall obtain all pertinent survey data needed for the creation of cross sections necessary for the determination of the existing rock surface (precondition survey). The cross sections provided by the Contractor will reflect all existing surfaces at rock cut areas in 50 foot increments. The Contractor will be responsible for the creation of the cross sections and for providing 2 (two) full sets of cross sections to the Engineer for use in the field. Upon completion of rock excavation the Contractor shall obtain all pertinent survey data needed for the creation of cross sections necessary for the determination of the of the final rock surface (final condition survey). These cross sections provided by the Contractor will reflect all existing surfaces at rock cut areas and final surfaces in rock cut areas in 50 foot increments. The Contractor will be responsible for the creation of these cross sections and for providing 2 (two) full sets of cross sections to the Engineer. The amount of Rock Excavation shall be determined by the method of average end areas based on the surfaces generated from the precondition survey and the final condition survey.

The work of scarifying existing pavement will not be measured for payment, but the cost shall be considered as included in the general cost of the contract.

The work of cutting concrete pavement will be measured for payment by the number of linear feet (meters) of saw cut made with an approved concrete saw to the lines delineated by the Engineer on the concrete pavement.

The cutting of bituminous concrete pavement will be measured for payment by the number of linear feet (meters) of cut made by an approved method to the lines delineated on the plans or as directed by the Engineer. Cuts made necessary by the Contractor's operation, such as, but not limited to, patching, bituminous concrete samples, continuance of previous runs, faulty work or faulty materials shall not be measured for payment. Bituminous parking areas are considered as bituminous concrete pavement.

The work, materials, tools, equipment and labor incidental to the disposal of unsuitable excavated material or breaking concrete pavement will not be measured for payment.

#### **Subarticle 2.02.05 - Basis of Payment:**

*Add the following to the end of the subarticle:*

All costs incidental to the determination of the amount of Rock Excavation as specified in subarticle 2.02.04 will be included in the price for "Rock Excavation."

## **ITEM #0202130A - SCARIFY BLASTING DRILL HOLES**

**DESCRIPTION:** This work consists of scarifying the pre-splitting drill holes resulting from the blasting operations, for the purpose of maintaining the aesthetic integrity of the rock face. The naturalization of rock cuts must be approved by the Engineer.

**CONSTRUCTION METHODS:** The Contractor may perform the work by use of pneumatic hammer, chisel, or any method approved by the Engineer. The Engineer has the right to designate which method shall be used before the work is begun or to change the method anytime if the method chosen by the Contractor is not deemed suitable in achieving the desired result.

No pattern shall be discernable on the rock face. The area scarified shall be blended into the surrounding surface so that the natural appearance of the rock is preserved.

Disposal of scarify debris will be in accordance with Section 2.02 – Roadway Excavation.

**METHOD OF MEASUREMENT:** This item will be measured for payment by linear foot. The distance measured will be the length of the drill hole marks to be removed from the rock face. It will be, at all times, the responsibility of the Contractor to perform all phases of this work to produce the required slope face scarification as determined by and to the satisfaction of the Engineer.

**BASIS OF PAYMENT:** This work will be paid for at the contract unit price per linear foot for "Scarify Blasting Drill Holes," which price shall include all materials, tools, equipment, disposal, labor, and work incidental thereto.

## **ITEM #0202216A – EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL**

**Description:** This work shall consist of excavating existing channel bottom material in areas where the channel bottom is to be disturbed and regraded to create a work area for a bridge, culvert, articulated concrete block placement or cofferdam installation. This item shall also include the stockpiling and protecting of the excavated material on the Site, subsequent placement of the stockpiled material in the channel, and the removal and proper disposal of all unused and unacceptable material.

**Materials:** The material for this item shall consist of the existing naturally-formed rocks, cobbles, gravel, soils and clean natural sediments from within the channel.

Any material excavated from ledge (bedrock) formations or broken from larger boulders will not be accepted. Broken concrete will not be accepted.

**Construction Methods:** The Contractor shall submit for the Engineer's approval a proposed location for stockpiling material. The proposed location shall be upland where disruption to the stream channel or impact to wetland areas caused by moving the excavated channel bottom material to and from the stockpile are minimized during the placement of material. The Contractor shall prepare the area approved by the Engineer, suitable in size and location for stockpiling the existing channel bottom material.

The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures. The stockpile area shall be cleared and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of a separation barrier such as: structural fabric, polyethylene sheeting, or similar. The stockpile area shall be adequately covered to protect the excavated channel bottom material from erosion by rain or other forces.

After clearing and grubbing, the Engineer will identify the limits of the exposed channel bottom material to be excavated under this item. The Engineer will identify the bottom limit of excavation, an amount up to but not exceeding 24 inches in depth, based upon visual inspection of the channel bottom material, unless otherwise specified in the Contract. After the limits of excavation have been determined, the Contractor shall excavate the channel bottom material, separate from any other roadway, structure, channel or unsuitable material excavation in the area. After the channel bottom material, and approved supplemental streambed channel material if needed, has been placed in the stockpile area, no other excavated or off-Site material shall be placed in the stockpile.

The stockpiled channel bottom material shall be placed at the designated location(s) to the required thickness as shown on the plans, denoted on the permit application, or as directed by the Engineer. Equipment and placement techniques shall prevent integration with the surrounding material and shall keep the channel bottom material relatively homogenous. Channel material shall be placed in a manner that replicates the original condition of the channel prior to excavation.

The Contractor shall perform all containment, diversion, or other separation of the channel flow when placing the channel bottom material to minimize sediment transport downstream.

The disposal of any surplus or unsuitable material shall be in accordance with Section 2.02. Restore the stockpile area as directed by the Engineer.

If it is agreed by the Engineer that there is an insufficient quantity of excavated channel bottom material within the Project limits, the Contractor shall obtain Supplemental Streambed Channel Material as specified under that item.

**Method of Measurement:** This work will be measured for payment by the number of cubic yards of channel bottom material excavated, stockpiled, maintained, and accepted, including disposal of unacceptable and surplus materials.

The Engineer will delineate the horizontal pay limit prior to the start of excavation. The vertical pay limit will be measured from the top of the existing channel bottom to the bottom of excavation required specifically for the stockpiling of channel bottom material.

Any material excavated beyond the approved horizontal pay limits or deeper than the depth of channel bottom material identified and approved by the Engineer will not be measured for payment under this item. Should such additional excavation be required to complete the Contract work, it will be measured for payment separately under the applicable pay items.

**Basis of Payment:** Payment for this work will be made at the Contract unit price per cubic yard for "Excavation and Reuse of Existing Channel Bottom Material." The price shall include all materials, equipment, tools and labor incidental to the preparation of the stockpile area, excavation of channel bottom, hauling of the material to the stockpile, and separation of any rock ledge or concrete debris, storing, and protecting (including but not limited to sedimentation controls and covering of excavated material).

Payment for clearing and grubbing of the approved stockpile area will be included in the item "Clearing and Grubbing."

Payment for the removal and proper disposal of all unused and unacceptable material will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for supplemental streambed channel material will be included in the item "Supplemental Streambed Channel Material." If no item appears in the proposal, the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for all containment, diversion or other separation of stream flow from the excavation of channel bottom material will be included in the item "Cofferdam and Dewatering" or special provision for "Handling Water."

Excavation of material not identified by the Engineer for stockpiling and reuse in accordance with this specification will be paid in accordance with Section 2.02.

Pay Item	Pay Unit
Excavation and Reuse of Existing Channel Bottom Material	c.y.

**ITEM #0202217A – SUPPLEMENTAL STREAMBED CHANNEL MATERIAL**

**Description:** This work shall consist of procuring, transporting and placing supplemental streambed channel material meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications. This work shall also include any necessary temporary protection and stockpiling of the supplemental streambed channel material on the Site and removal and proper disposal of all unused material.

**Materials:** When a sufficient quantity of material is not available from the existing streambed channel within the permitted footprint of the Site, the Contractor shall furnish visually inspected and accepted supplemental streambed channel material from an off-Site source.

The supplemental streambed channel material for this item shall be consistent with the existing naturally-formed cobbles and rocks, gravel, and clean natural sediments found within the existing channel. Rock excavated from ledge (bedrock) formations, broken from larger boulders, broken concrete or angular material will not be accepted. Rock larger than 12 inches in diameter will not be accepted. Silts and clays will not be accepted.

The visual inspection of the supplemental streambed channel material shall be performed by the Engineer at the off-Site source prior to delivery of material to the Site. The Contractor shall notify the Engineer at least 10 days in advance of the need for inspection of proposed off-Site material.

**Construction Methods:** At the start of construction, the Contractor shall prepare an area, approved by the Engineer, suitable in size and location for stockpiling the supplemental streambed channel bottom material. The Contractor shall select an upland location where disruption to the stream channel or impact to wetland areas caused by moving the supplemental streambed channel bottom material to and from the stockpile are minimized during the placement of material. The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures.

The stockpile area shall be cleared and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of structural fabric if required. The stockpile area shall be adequately covered to protect the supplemental streambed channel material from erosion by rain or other forces. After the supplemental streambed channel material and the excavated channel bottom material to be reused have been placed in the stockpile areas, no other excavated or off-Site material shall be placed in the stockpiles.

The reused and supplemental streambed channel material shall be placed at the designated location(s) to the required thickness as shown on the plans or denoted on the permit application, or as directed by the Engineer. Equipment and placement techniques shall prevent integration with the surrounding material and shall keep the channel bottom material relatively homogenous. Reused and supplemental streambed channel material shall be placed in a manner that replicates the original condition of the channel prior to excavation.

The Contractor shall perform all containment, diversion, or other separation of the channel flow when placing the reused and supplemental streambed channel material to minimize sediment transport downstream.

The disposal of any surplus or unsuitable material shall be in accordance with Section 2.02. Restore the stockpile area as directed by the Engineer.

**Method of Measurement:** Work under this item shall be measured for payment as provided under Article 1.09.04 – Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as “Estimated Cost” for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the Contract.

**Basis of Payment:** This work will be paid for under Article 1.09.04 – Extra and Cost Plus Work.

Payment for clearing and grubbing of the approved stockpile area will be included in the item “Clearing and Grubbing.”

Payment for excavation and reuse of existing channel bottom material will be included in the item “Excavation and Reuse of Existing Channel Bottom Material.”

Payment for all containment, diversion or other separation of stream flow from the excavation of channel bottom material will be included in the item “Cofferdam and Dewatering” or special provision for “Handling Water.”

Pay Item	Pay Unit
Supplemental Streambed Channel Material	est.



## **ITEM #0202315A - DISPOSAL OF CONTROLLED MATERIALS**

### **Description:**

Work under this Item shall consist of the loading, transportation, and final off-site treatment/recycling/disposal of Controlled Materials that have been generated from excavation activities within the Project Limits and brought to the temporary waste stockpile area (WSA) as surplus or unsuitable for reuse on the Project. The nature of this contaminated material is documented in the report listed in the *Notice to Contractor – Environmental Investigations*. The results contained in the environmental investigation report listed in the *Notice to Contractor – Environmental Investigations* show levels of various contaminants that the Contractor may encounter during construction. Actual levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed as non-hazardous at one or more of the disposal facilities listed herein. The Controlled Materials, after proper characterization by the Engineer, shall be taken from the WSA, loaded, transported to and disposed at a permitted treatment/recycle/disposal facility listed herein.

The Contractor must use one or more of the following Department-approved treatment/recycle/disposal facilities for the disposal of non-hazardous soils:

Advanced Disposal Services Greentree* Landfill 635 Toby Road Kersey, PA 15846 Att: Don Henrichs Phone: (814) 265-1744 Fax: (814) 265-8745	Advanced Disposal (Managed by Interstate Waste Services) 7095 Glades Pike Summerset, PA 15501 Att: Todd Casselman Phone: (814) 444-0112 Fax: (814) 444-0127
Allied Waste Niagara Fall Landfill, LLC 5600 Niagara Falls Blvd. Niagara, NY 14304 Att: David Hanson Phone: (716) 285-3344 Fax: (716) 285-3398	Clean Earth of Carteret 24 Middlesex Avenue Carteret, NJ 07008 Att: Cheryl Coffee Phone: (732) 541-8909 Fax: (732) 541-8105
Clean Earth of Connecticut 58 North Washington Street Plainville, CT 06062 Att: Scott Miller Phone: (860) 747-8888  Fax: (203) 757-4933	Clean Earth of Philadelphia 3201 S. 61 Street Philadelphia, PA 19153 Att: Mike Kelly Phone: (215) 724-5520 Fax: (215) 724-2939

Clean Earth of Southeast Pennsylvania, Inc. (AKA CESP) 7 Steel Road Morrisville, PA 19067 Att: Joe Siravo Phone: (215) 428-1700 Fax: (215) 428-1704	Clinton Landfill 242 Church Street Clinton, MA 01510 Att: Chris McGown Phone: (978) 365-4110 Fax: (978) 365-4106
Cumberland County Landfill (aka Community Refuse Services - Managed by Interstate Waste Services) 135 Vaughn Road Shippensburg, PA 17257 Att: Kevin Bush Phone: (717) 423-9953 Fax: (717) 423-9954	Colonie Landfill 1319 Loudon Road Cohoes, NY 12047 Att: Eric Morales Phone: (518) 951-0794 Fax: (518) 786-7331
ESMI of New York 304 Towpath Road Fort Edward, New York 12828 Att: Peter Hanson Phone: (800) 511-3764 Fax: (518) 747-1181	Dudley Reclamation Project (W.L. French Excavating) 123 Oxford Avenue Dudley, MA Att: Jarrett Everton Phone: (978) 663-2623 Fax: (978) 663-5240
Hazelton Creek Properties, LLC* 280 South Church Street Hazelton, PA 18201 Att: Allen Swantek Phone: (870) 501-5050 Fax: (570) 457-3395	ESMI of New Hampshire 67 International Drive Loudon, NH 03307 Att: Steve Bennitt Phone: (800) 950-7645

<p>Ontario County Landfill (Managed by Casella Waste)  3555 Post Farm Road  Stanley, NY 14561  Att: Scott Sampson  Phone: (603) 235-3597  Fax: (585) 526-5459</p>	<p>Manchester Landfill  311 Olcott Street  Manchester, CT 06040  Att: Brooks Parker  Phone: (860) 647-5279  Fax: (6860) 647-3238</p>
<p>Red Technologies Soil  232 Airline Avenue  Portland, CT 06980  Att: Christopher Windangle  Phone: (860) 342-1022  Fax: (860) 342-1042</p>	<p>Republic Services Conestoga Landfill*  420 Quarry Road  Morgantown, PA 19543  Att: James Kuhn  Phone: (610) 286-6844  Fax: (610) 286-7048</p>
<p>Soil Safe, Inc.  378 Route 130  Logan Township, Bridgeport, NJ 08085  Att: Billy Booth  Phone: (410) 872-3990  Fax: (410) 872-9082</p>	<p>The Southbridge Recycling and Disposal Park  165 Barefoot Road  Southbridge, MA 01550  Phone: (603) 235-3597 (Scott)  Fax: (508) 765-6812</p>
<p>Ted Ondrick Company, LLC  58 Industrial Road  Chicopee, MA 01020  Att: David Costanzo  Phone: (413) 592-2566  Fax: (413) 592-7451</p>	<p>Tunnel Hill Reclamation  2500 Township Road, 205 Route 2  New Lexington, OH 43764  Att: William Gay  Phone: (740) 342-1180  Fax: (914) 713-0672</p>
<p>Turnkey landfill - Waste Management of New Hampshire  P.O. Box 7065  90 Rochester Neck Road  Rochester, NH 03839  Att: Ellen Bellio  Phone: (603) 330-2170  Fax: (603) 330-2130</p>	<p>Waste Management: RCI Fitchburg Landfill  Fitchburg Princeton Road  Westminster, MA 01473  Att: Frank Sepiol  Phone: (978) 874-0037  Fax: (978) 355-6317</p>

\* Please note that if this facility is to be used, each bin letter will require an additional 10 days (or more) waiting period in addition to the 15-day lab period designated in the Specifications to allow for Pennsylvania Department of Environmental Protection (PADEP) review.

The above list contains treatment/recycle/disposal facilities which can accept the wastestream generated by the Project in quantities that may be limited by their permits and their operations' restrictions. It is the responsibility of the Contractor to verify that a facility will be available and capable of handling the volume as well as the chemical and physical characteristics of the material generated by the Project.

## **Construction Methods:**

### **A. Material Disposal**

The Engineer will sample materials stored at WSA at a frequency established by the selected treatment/recycling/disposal facility. The Contractor shall designate to the Engineer which facility it intends to use, as well as the facility acceptance criteria and sampling frequency, prior to samples being collected. The Contractor is hereby notified that laboratory turnaround time is expected to be fifteen (15) working days. Turnaround time is the period of time beginning when the Contractor notifies the Engineer which facility it intends to use and that the bin within the WSA is full and ready for sampling and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended treatment/recycling/disposal facility may prompt the need to resample and will therefore restart the time required for laboratory turnaround. The laboratory will furnish such results to the Engineer. Upon receipt, the Engineer will make available to the Contractor the results of the final waste characterization determinations. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

**It is solely the Contractor's responsibility to coordinate the disposal of Controlled Materials with its selected treatment/recycling/disposal facility(ies).** The Contractor shall obtain and complete **all paperwork** necessary to arrange for material disposal (e.g., disposal facility waste profile sheets, Qualified Environmental Professional (QEP) certifications/letters, checklists, manifests/shipping papers/bills of lading, and/or any other supporting documentation, etc.). The Contractor shall retain the services of a QEP (i.e., CT Licensed Environmental Professional (LEP), MA Licensed Site Professional (LSP), Certified Hazardous Materials Manager (CHMM), etc.), as necessary, to facilitate the completion of such documents as required by the Contractor's selected disposal facility. Prior to submission to the receiving facility, the Contractor shall provide all disposal documents to the Engineer for review and Generator signature(s), as applicable.

Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all applicable Federal and State regulations. **No claim will be considered based on the failure of the Contractor's selected disposal facility(ies) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

Any material processing (including but not limited to the removal of woody debris, scrap metal, pressure-treated and untreated wood timber, large stone, concrete, polyethylene sheeting or similar material) required by the Contractor's selected facility will be completed by the Contractor prior to the material leaving the Site. It is solely the Contractor's responsibility to meet any such

requirements of its facility. Any materials removed shall be disposed of or recycled in a manner acceptable to the Engineer at no additional cost.

All manifests or bills of lading utilized to accompany the transportation of the material shall be prepared by the Contractor and signed by an authorized Department representative, as Generator, for each truckload of material that leaves the Site. The Contractor shall forward the appropriate original copies of all manifests or bills of lading to the Engineer the same day the material leaves the Project.

A load-specific certificate of treatment/recycling/disposal, signed by the authorized agent representing the disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

## **B. Material Transportation**

In addition to all pertinent Federal, State and local laws or regulatory agency policies, the Contractor shall adhere to the following precautions during the transport of Controlled Materials off-site:

1. Transported Controlled Materials are to be covered sufficiently to preclude the loss of material during transport prior to leaving the Site and are to remain covered until their arrival at the selected treatment/recycling/disposal facility.
2. All vehicles departing the Site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume and contents of materials carried.
3. No materials shall leave the Site unless a treatment/recycling/disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste.

## **C. Equipment Decontamination**

All equipment shall be provided to the work Site free of gross contamination. The Engineer may prohibit from the Site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the Site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and supplies leaving the Project, and between different stages of the work.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

### **Method of Measurement:**

The work of "DISPOSAL OF CONTROLLED MATERIALS" will be measured for payment as the actual net weight in tons of material delivered to the treatment/recycling/disposal facility. Such determinations shall be made by measuring each hauling vehicle on the certified permanent scales at the treatment/recycling/disposal facility. Total weight will be the summation of weight bills issued by the facility specific to this Project. Excess excavations made by the Contractor beyond the payment limits specified in Specification Sections 2.02, 2.03, 2.05, 2.06, or the Contract Special Provisions (as appropriate), will not be measured for payment and the Contractor assumes responsibility for all costs associated with the appropriate handling, management and disposal of this material.

Equipment decontamination, the collection of residuals, and the collection and disposal of liquids generated during equipment decontamination activities, will not be measured separately for payment.

Any material processing required by the Contractor-selected disposal facility, including the proper disposal of all removed materials, will not be measured for payment.

### **Basis of Payment:**

This work will be paid for at the Contract unit price, which shall include the preparation of **all** related waste profile and shipping paperwork; the loading and transportation of Controlled Materials from the WSA to the treatment/recycling/disposal facility; the fees paid to the facility for treatment/recycling/disposal; and all equipment, materials, tools, and labor incidental to this work. **This unit price will be applicable to all of the listed disposal facilities and will not change for the duration of the Project.**

This price shall also include equipment decontamination; the collection of residuals generated during decontamination and placement of such material in the WSA; and the collection and disposal of liquids generated during equipment decontamination activities.

Pay Item

Pay Unit

Disposal of Controlled Materials

Ton

**ITEM #0202503A – REMOVAL OF CONCRETE CURB**

**DESCRIPTION:** This work shall consist of removing existing concrete curbing, doweled or not, during any phase of construction where the concrete curbing is in conflict with proposed work or as directed by the Engineer.

**CONSTRUCTION METHODS:** The removal of concrete curbing will not be called out on the plan.

**METHOD OF MEASUREMENT:** This item will be measured for payment by linear foot. The distance measured will be the length of concrete curbing removed.

**BASIS OF PAYMENT:** This work will be paid for at the contract unit price per linear foot for "Removal of Concrete Curb," which price shall include all saw cutting, excavation, disposal of rubble, materials, tools, equipment, labor, and work incidental thereto.

## **ITEM #0204001A – COFFERDAM AND DEWATERING**

Cofferdam and Dewatering shall conform to the Standard Specification Form 818, Section 2.04 amended as follows:

Description: Replace the Description section with the following:

Work under this item shall consist of the design and construction of cofferdams as and where shown and specifically designated as such on the plans; necessary dewatering, adjustments, repair or reconstruction; and the removal of related facilities. Cofferdam shall be any type of earth retaining system which the Contractor elects to build to satisfy, and which does satisfy, the condition that existing facilities be properly retained during excavation for the placement of substructure or other facilities.

As designated on the plans, portions of installed cofferdam material shall be left in place.



Rev. Date 06/014/2020

**ITEM #0204139A – COFFERDAM MATERIAL LEFT IN PLACE**

**Description:** This specification covers only that portion of the cofferdam system that may be ordered left in place by the Engineer or designated in the plans to be left in place.

**Materials:** Vacant

**Construction Methods:** The Contractor shall submit to the Engineer for approval, plans showing the proposed method of construction prior to the start of such construction.

**Method of Measurement:** Cofferdam material left in place will be measured by the actual quantity of linear feet of material left in place and accepted by the Engineer.

Cofferdam portions left in place solely at the Contractor’s option, and with the Engineer’s permission, will not be measured for payment.

**Basis of Payment:** Payment for this work will be made as follows:  
That portion of the cofferdam ordered or designated in the plans to be left in place will be paid for at the Contract unit price per linear foot for “Cofferdam Material Left in Place,” applying to one or more structures or portions of structures, which price shall include only the cost of material left in place, the work to cut the cofferdam and removal of the cut off portions from the Site and all work incidental thereto.

Pay Item	Pay Unit
Cofferdam Material Left in Place	l.f.

## **ITEM #0204151A - HANDLING WATER**

**Description:** Work under this item shall consist of designing, furnishing, installing, maintaining, removing and disposing of a temporary water handling system. This may include water-handling-cofferdams (temporary barriers), bypass pipes, bypass pumps/hoses, temporary energy dissipation, sumps, drainage channels, and equipment and work necessary for dewatering.

A temporary water handling system redirects surface water beyond, through, or around the limits of construction to allow work to be done in the dry.

**Materials:** The materials required for this work shall be as shown on the plans, on the accepted working drawings, or as ordered by the Engineer.

**Construction Methods:** The Contractor shall prepare and submit written procedures for handling water. Working drawings, in accordance with Article 1.05.02, shall also be prepared and submitted.

The Contractor shall consider stream conditions and water elevations associated with the Site to determine the type of temporary water handling system required to redirect water away from work being performed. The system shall be designed to be compatible with the stage construction and Maintenance and Protection of Traffic, as indicated in the Contract, and shall conform to Section 1.10.

The Contractor shall be responsible for maintenance of the water handling system. If the system becomes damaged or displaced during construction, the system shall be corrected as required.

Unless otherwise provided or directed, all temporary water handling system components shall be removed and disposed of in an acceptable manner when no longer required.

**Method of Measurement:** The work under this item, being paid on a lump sum basis, will not be measured for payment.

**Basis of Payment:** This work will be paid for at the Contract lump sum price for “Handling Water” complete and accepted, which price shall include designing (including submittals and working drawings), furnishing, installing, maintaining, removing, and disposing of all temporary water handling system components as are necessary for completion of the work. This price shall include all materials, equipment, tools, labor and work incidental thereto.

A schedule of values for payment shall be submitted to the Engineer for review and comment.

Pay Item	Pay Unit
Handling Water	l.s.

## **ITEM #0210200A – TEMPORARY SLOPE PROTECTION**

Work under this item shall conform to the requirements of Section 2.10 – Water Pollution Control (Soil Erosion), amended as follows:

### **Article 2.01.02 – Materials:**

The materials for this item shall consist of hay, straw, temporary turf establishment or wood chips conforming to Section M.13.05 of the Specifications as well as Section 5-4 of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, or as approved by the Engineer.

### **Article 2.01.03 – Construction Method:**

*Replace the fourth paragraph with:*

When Hay/Straw are used as a mulch for temporary slope protection, it shall be applied at the rate of 2.5 to 3.0 tons per acre and held down with a tackifier if directed by the Engineer. The tackifier must be a qualified product as determined by the Engineer.

When Hay/Straw are used as a mulch for temporary slope protection with temporary seeding, it shall be applied at the rate of 2.0 tons per acre and held down with a tackifier if directed by the Engineer. The tackifier must be a qualified product as determined by the Engineer.

When wood chips are used for temporary slope protection, it shall be applied at the rate of 6.9 c. y. per 120 s. y.

### **Article 2.01.05 – Basis of Payment:**

Temporary slope protection will be paid for at the contract unit price per square yard for “Temporary Slope Protection,” which price shall include the installation and removal, where necessary, of the protective material and all equipment, materials, tools and labor incidental thereto. The cost of the temporary seeding will be paid under Item No. 0950010 – Temporary Seeding.

## **ITEM #0404101A – BITUMINOUS CONCRETE PATCHING - PARTIAL DEPTH**

**Description:** This work shall consist of sawcutting, removing, and properly disposing of deteriorated bituminous concrete pavement. It shall also include removal and proper disposal of deteriorated, spalled, broken, damaged, or delaminated Portland Cement Concrete (PCC) pavement base, compaction of granular base, application of tack coat on the PCC base and vertical faces of the sawcut, and placement of bituminous concrete according to the plans or as directed by the Engineer.

In areas where there is no underlying PCC, the work shall consist of sawcutting, removing and properly disposing of deteriorated bituminous concrete pavement, regrading and recompacting the existing granular base, cleaning and application of tack coat on the vertical faces of the sawcut, and placement of Hot-Mix Asphalt (HMA) or an equivalent Polymer Modified Asphalt (PMA) at the same thickness as surrounding pavement (minimum 6 inches) and as shown on the plans.

**Materials:** All materials for this work shall meet the requirements of Section M.04 and shall consist of the following:

1. HMA S0.5, HMA S0.375 (when requested by the Contractor and approved by the Engineer at least 5 days in advance), or an equivalent PMA. All HMA or PMA shall be Traffic Level 2 unless indicated otherwise on the plans.
2. Tack coat.

**Construction Methods:** Equipment for this work shall include pavement cutting, removal, material handling, vacuuming, small compaction equipment, and a maximum 15-pound jackhammer. The Contractor shall supply a steel crow/pry bar (approximate length of 6 feet) weighing 15-25 lbs. The Contractor shall provide a tack coat distributor with a minimum 150-gallon capacity tank that is trailer mounted or self-propelled and capable of applying tack coat meeting the requirements of Section 4.06. Compressed air equipment (minimum 100 psi) and a 10-foot straightedge shall also be provided. If the work is performed at night a portable truck towed light tower and driver shall be provided for use by the Engineer for all marking, installation, and inspection of the patches.

All equipment used to place and compact the HMA or PMA shall meet the requirements of Section 4.06. Due to the nature of this work, the equipment shall be medium and small size to fit excavated areas to be patched. It is also expected that placement of HMA or PMA will require hand work or a combination of equipment and hand work methods and tools to achieve the required results.

1. The Engineer will mark out all areas for patching. The minimum length and width dimension of areas to be patched shall be 24 inches. Any area to be patched shall completely encompass the entire distressed pavement area and extend at least 6 inches beyond into the surrounding pavement wherever possible.
2. Sawcut the bituminous concrete at the marked areas to a maximum depth of 6 inches, but not into the underlying concrete pavement.
3. Remove existing bituminous concrete pavement from within the sawcut.

4. Vacuum the debris and use compressed air to clean the surface of the underlying concrete pavement.
5. The Engineer will sound the PCC pavement with the 6-foot crow bar and delineate area(s) to be patched. The 6-foot crow bar will be dropped by the Engineer (or their designee) from approximately one foot to sound the concrete.
6. Maximum 15-pound jackhammers shall be used to loosen delineated PCC pavement.
7. Vacuum the debris in combination with other acceptable means to remove all loose materials.
8. If granular base is exposed, it shall be graded and compacted using jumping jack or vibratory plate compactors. A minimum of 4 passes or coverages must be made by the compaction device. If existing granular base material is lost during the excavation of the deteriorated pavement, the Contractor shall add material meeting the requirements of Section 3.04. Compaction of the granular base shall meet the density requirements of Section 3.04.
9. If it is determined that poor or inadequate granular base is contributing to the distress in the asphalt layers, the Engineer may direct that it be removed and Processed Aggregate Base be placed and compacted.
10. The excavated areas shall be cleaned by wiping, sweeping, and use of compressed air to the satisfaction of the Engineer.
11. Tack coat shall be applied covering the entire area of the PCC base and the vertical bituminous concrete faces and allowed to break or cure.
12. HMA S0.5 or PMA S0.5 shall be placed in lifts between 2 inches and 3 inches thick, shall have a final lift thickness placed at 2 inches, and shall be placed as shown in the plans. HMA S0.375 or PMA S0.375 shall be placed in lifts between 1.5 inches and 2.5 inches, shall have a final lift thickness placed at 1.5 inches, and shall be placed as shown in the plans. Pavement placement shall also be in accordance with Subarticle 4.06.03-6. The Contractor shall confirm that the surface elevation of the finished patch matches the elevation of the surrounding pavement surface to within 1/4 inch using the 10-foot straightedge. The Contractor shall confirm that all patch material placed is uniform in appearance without segregation.
13. All excavated materials shall be properly disposed of at the end of the work shift.

**Method of Measurement:** This work will be measured by the number of square yards of patched bituminous concrete completed and accepted.

**Basis of Payment:** This work will be paid for at the Contract unit price per square yard for “Bituminous Concrete Patching - Partial Depth” completed and accepted. The price shall include all tools, materials, labor, and equipment, including sawcutting, pavement removal and disposal, vacuuming of debris, jackhammering of PCC pavement, grading and compaction of existing granular base, cleaning, tack coat application, and HMA or PMA placement and compaction.

There will be no additional compensation for replacing granular base material lost during the excavation of the deteriorated pavement.

Inadequate or poor granular base foundations that cannot be recompacted as determined by the Engineer will be paid for at the Contract unit price per cubic yard of “Processed Aggregate Base.”

Pay Item	Pay Unit
Bituminous Concrete Patching - Partial Depth	s.y.

## **ITEM # 0406125A – BITUMINOUS CONCRETE SURFACE PATCH**

### **Description:**

This work shall consist of milling out deteriorated bituminous concrete pavement to a depth between 1.5 to 2.5 inches, disposing of pavement millings, sweeping and cleaning, application of tack coat on all surfaces within the milled area, and placement of Hot-Mix Asphalt (HMA) or an equivalent Polymer Modified Asphalt (PMA) to match the elevation of the surrounding pavement.

For road sections being milled and paved, all patching operations must be completed after milling is complete and before paving begins. All patching operations shall be completed within one working day following milling and shall be completed before traffic is permitted to resume on the exposed roadway.

### **Materials:**

Materials for this work shall meet the requirements of Section M.04 and shall consist of the following:

1. HMA S0.375 or an equivalent PMA. All HMA or PMA shall be Traffic Level 2 unless indicated otherwise on the plans.
2. Tack coat.

### **Construction Methods:**

Equipment for this work shall include, but is not limited to, the following:

1. Milling machine: A milling machine designed and built for milling flexible pavements. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement.

The rotary drum of the machine shall use carbide tip tools spaced not more than 5/8 inches apart. The forward speed of the milling machine shall be a maximum of 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove milled material from the surface of the roadway and discharge the millings into a truck in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation. When milling smaller areas or areas where it is impractical to use the above described equipment, the Contractor may be permitted to use a lesser equipped milling machine, if approved by the Engineer.

The minimum milling width shall be 20 inches, making the minimum achievable patch size 20 inches by 20 inches, or 0.30 square yards.

2. 10-foot straight edge.
3. Sweeper: A sweeper, equipped with a water tank, capable of remove millings and loose debris.
4. Air compressor: An air compressor capable of producing 100 psi oil free compressed air for cleaning the milled pavement surface.
5. Hot air lance: A hot air lance that can deliver 100 psi oil free heated air to clean and dry the pavement surface. The compressed air emitted from the tip of the lance shall achieve a temperature of at least 1500°F.
6. Paving and compaction equipment: Paving and compaction equipment meeting the requirements of Section 4.06. It is expected that much of the placement will require hand work or a mixture of equipment and hand tools to achieve the required results. Smaller compaction equipment, including vibratory plate compactors, will be allowed by the Engineer to achieve the required results. At all times the Contractor is required to meet the density and compaction and all other requirements specified in Sections 4.06 and M.04.
7. Portable lighting equipment: If the work is performed at night a truck towed light tower and driver shall be provided for use by the Engineer for all marking, installation, and inspection of the patches.
8. Tack Coat Distributor: A minimum 150-gallon capacity tank that is trailer mounted or self-propelled and capable of applying tack coat meeting the requirements of Section 4.06.

The work shall include, but is not limited to, the following:

1. Demarcating: The Engineer will mark out areas for patching and will determine the appropriate milling depth between 1.5 inches and 2.5 inches. The minimum length and width dimensions of the patch shall be 20 inches. Any area to be patched shall completely encompass the entire distressed pavement area and extend at least 6 inches beyond into the surrounding pavement wherever possible.
2. Milling: Mill marked out areas to the specified depths.
3. Sweeping, Cleaning, and Drying: Sweep the milled surface clean, and allow milled areas to dry. Any moisture in or on the milled areas must be allowed to evaporate or be removed with the assistance of the hot air lance. When the milled area is dry to the satisfaction of the Engineer, it shall be blown clean of any residual dust or debris using compressed air.



4. Applying Tack Coat: Apply tack coat to the entire clean and dry milled area, including the sides/walls of the area to be patched, in accordance with the requirements of Section 4.06.
5. Placing Patch Material: After the tack coat has had sufficient time to cure or break, HMA S0.375 or equivalent PMA shall be placed and compacted to the requirements above and in Section 4.06. The Contractor shall confirm that the surface elevation of the finished patch matches the elevation of the surrounding pavement surface to within 1/4 inch using the 10-foot straightedge. The Contractor shall confirm that all patch material placed is uniform in appearance without segregation.

**Method of Measurement:**

This work will be measured by the number of square yards of patched bituminous concrete completed and accepted.

**Basis of Payment:**

This work will be paid for at the Contract unit price per square yard of "Bituminous Concrete Surface Patch." The price shall include all tools, materials, labor and equipment; milling, removing, and disposing of pavement millings; sweeping and cleaning of the milled area; drying the milled area; applying tack coat to the milled area; and placement and compaction of HMA or PMA.

Pay Item	Pay Unit
Bituminous Concrete Surface Patch	s.y.

## **ITEM #0406195A – FILLING JOINTS AND CRACKS IN BITUMINOUS CONCRETE PAVEMENT**

**Description:** This work consists of furnishing and applying a hot-applied mixture of Performance Graded (PG) asphalt binder and polyester fibers into bituminous concrete pavement joints and cracks. It shall be constructed in close conformity with the lines, grades, thicknesses, and typical cross sections shown on the plans or established by the Engineer. Filling Joints and Cracks in Bituminous Concrete Pavement may be used in conjunction with other repair treatments including joint and crack sealing or patching, in which case the sequence of treatments will be provided in the Plans or directed by the Engineer.

For the purposes of this document, the word “crack” includes all longitudinal (along the direction of travel) and transverse (perpendicular to the direction of travel) cracks and joints. All work specified for “crack(s)” herein shall apply to all types of cracks and joints unless otherwise specified.

**Materials:** The hot-applied crack filling material shall be composed of a mixture of Performance Graded Asphalt Binder and polyester fibers blended to provide  $3\% \pm 0.5\%$  fibers by weight. No field mixing of the fibers is allowed. The crack filling material (with fibers) shall be prepackaged, labeled, and arrive on Site ready to be placed in the melter applicator. The component materials shall meet the following requirements:

1. Polyester Fibers: A Materials Certificate shall be provided by the manufacturer for this material. The polyester fibers must meet the following requirements:

Property	Test Method	Requirement
Length	N/A	0.25 inch $\pm$ 2 mils (6.4mm $\pm$ 0.05mm)
Crimps	ASTM D3937	None
Tensile Strength*	ASTM D2256	69,600 psi (480 MPa), minimum
Denier*	ASTM D1577	3.0 – 6.0
Specific Gravity	N/A	1.32 – 1.40
Melting Temperature	N/A	473°F (245°C), minimum
Ignition Temperature	N/A	1000°F (540°C), minimum

\* This data must be obtained prior to cutting the fibers.

2. Performance Graded (PG) Asphalt Binder: The Performance Graded (PG) Asphalt Binder shall be PG 64E-22 (PG 76-22) and shall meet the requirements of AASHTO M 320(M) and AASHTO R 29(M). The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the asphalt binder specific gravity at 77°F, rotational viscosity at 275°F and 329°F, and a mixing and compaction viscosity-temperature chart as if the asphalt binder were to be used as binder for the construction of hot mix asphalt. The blending of PG asphalt binder from different suppliers is strictly prohibited. Contractors who blend PG asphalt

binders will be classified as a "Supplier" and will be required to certify the asphalt binder in accordance with AASHTO R 26(M).

3. Optional Barrier Material - Clean, Dry Sand: Sand shall conform to the requirements of Standard Specification Article M.01.03, Fine Aggregates, except that the gradation requirements shall be replaced with the following:

Square Mesh Sieve	Percent Passing by Weight
No. 8	100
No. 50	10 – 40
No. 100	0 – 10
No. 200	0 – 3

The Contractor must submit to the Engineer all Material Safety Data Sheet and Certified Test Report documents from the material manufacturer(s) prior to the commencement of work. During work progress, the Contractor must submit to the Engineer the manufacturer's Material Certificate for compliance to applicable specifications for each batch or lot of material used on the Contract.

**Construction Methods:** The crack filling operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications.

1. Equipment: The equipment used by the Contractor shall include, but not be limited to, the following:
  - a. Melter Applicator: The unit shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack fill material at the manufacturer's specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical fullsweep agitator to provide continuous blending. The unit shall be equipped with thermometers to monitor the material temperature and the heating oil temperature. The unit shall be equipped with thermostatic controls that allow the operator to regulate material temperature up to at least 425°F.
  - b. Application Wand and Squeegee Applicator: The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality designed with a "U" shaped configuration. It shall be of a size adequate to strike off, flush with the surrounding pavement surface and without overflow around the sides, all crack fill material placed. This tool shall be either attached to the applicator wand or used separately as its own long handled tool.

- c. **Hot Air Lance:** The unit shall be designed for cleaning and drying the pavement surface cracks. Minimum compressed air capacity shall be 100 psi. The compressed air emitted from the tip of the lance shall be capable of achieving a temperature of at least 1500°F.
  - d. **Vertically Mounted Power Driven Wire Brush:** This tool shall be used to remove any dirt, debris, or vegetation to the depths specified that cannot be removed by the hot air lance. It shall be of adequate size and power to remove all material from cracks as specified.
- 2. **Weather Requirements:** Work shall not be performed unless the pavement is dry. No frost, snow, ice, or standing water may be present on the roadway surface or within the cracks. The ambient temperature must be 40°F and rising during field application operations for work to proceed.
  - 3. **Material Mixing Procedure:** The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack fill material shall never exceed 400°F.
  - 4. **Determination of Cracks to be Filled:** The width and depth requirements for cracks to be filled are as follows:

All crack width determinations shall be made by measuring the crack width flush at the surface of the pavement prior to being filled. A straightedge shall be used whenever necessary to establish the location or limits of the flush surface of the pavement.

All cracks from ¼ inch up to 1.5 inches wide shall be prepared and filled as stated below. Cracks that are between ¼ inch and 1.5 inches wide, but eventually taper in width below the minimum ¼ inch, shall also be prepared and filled as stated below. Only cracks that are less than ¼ inch wide throughout their entire length shall be excluded.

Transverse cracks, where a portion of the crack (50% or less) exceeds a width of 1.5 inches, up to 2 inches, shall also be prepared and filled as stated below.

All joints to be filled that are raveled (loss of the pavement surface material) shall be at least ½ inch in depth at the joint's deepest point. The minimum width of a raveled joint must be ½ inch. The maximum width of a raveled joint to be filled is 3 inches.

Any cracks exceeding the width and depth requirements specified above shall be repaired using separate items.

- 5. **Crack Preparation:** Cracks to be filled shall be treated with a hot air lance prior to application of the crack fill material. Two (2) passes minimum shall be made with the hot air lance. The hot air lance operation shall proceed at a rate no greater than 120 feet per minute. There shall

be no more than 10 minutes between the second hot air lance treatment and the material application. Should this time be exceeded, additional pass(es) shall be made with the hot air lance.

The use of the hot air lance is not intended to heat the crack. It is to be used to blow all debris from the crack to the depths specified below and to remove any latent moisture from the crack until the inside of the crack is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water from the bottom of a crack. If standing water is present in the bottom of any crack, the filling operation shall be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water from a crack to help accelerate the natural evaporation process. If standing water remains after using compressed air, the crack shall be allowed to dry naturally until remaining standing water evaporates. The hot air lance may be used after visible water has evaporated. If a crack is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

The hot air lance shall be used to blow all debris from cracks (not including raveled joints) to a depth of at least  $\frac{3}{4}$  inch for cracks between  $\frac{1}{4}$  inch and  $\frac{3}{4}$  inch wide, and to a depth of 1.25 inches for cracks between  $\frac{3}{4}$  inch and 2 inches wide. The hot air lance shall be used to blow all debris from raveled joints to a depth of 1 inch or the full depth of the joint, whichever is smaller.

In the event that cracks are packed tightly with debris, dirt, vegetation, or other material, except previously placed sealant or filler, the Contractor shall use a vertically mounted power driven wire brush to remove all material and burnish the sides of the crack to the depths specified above. Cracks treated with the power driven wire brush shall subsequently be treated with a hot air lance as described in this section. The use of both the power driven wire brush and the hot air lance shall result in the complete removal of all material in the crack (except previously placed sealant or filler) to the depths specified above such that the sides of the crack are completely free and clean of any debris and moisture.

In the event that cracks have depths greater than 2 inches below the pavement surface, the Contractor may place a barrier composed of clean, dry sand as specified herein. The barrier material shall be placed in a manner leaving 1.25 inches below the elevation of the pavement surface for crack filling material. A barrier will not be allowed for cracks wider than 1.5 inches or less than  $\frac{1}{2}$  inch wide.

6. Crack Filling: As soon as cracks have been prepared, they shall be filled to refusal along their entire length. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range at all times. The filling operation shall be suspended if the temperature of the crack filling material falls outside the specified temperature range and shall remain suspended until the crack filling material is brought within the specified temperature range. Filled cracks are to be squeegeed immediately following application of the crack filling material, striking excess filler flat to the adjacent

pavement surface. There shall be no build-up of treatment material above or adjacent to the crack at any time. If the initial application of crack fill material fails to fill the crack or shrinks upon cooling such that there is a depression formed of at least ¼ inch or greater, a second application of filler shall be placed over the first application.

7. Protection of Filled Cracks: Traffic shall not be permitted on the pavement until the crack fill material is set so that the material does not track and is not deformed or pulled out by tires. If the work under this item is being performed prior to placing a hot mix overlay or other surface treatment, a detackifier or blotting agent will not be allowed. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent may be used. If a detackifier or blotting agent is used, it shall be one recommended by the supplier of the crack filling material and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials shall be allowed. Information on the type and usage of a detackifier or blotting agent shall be presented to the Engineer for their written acceptance prior to use.
8. Removal and Disposal of Material: All debris generated from the operations described above shall be removed from the roadway by the Contractor.

Treatment material remaining in the Contractor's kettle at the close of the daily work session shall be discarded. At no time shall treatment material be re-heated for use in subsequent crack filling applications unless permitted by the Engineer following a review of specific circumstances.

All debris and surplus treatment material shall be properly disposed in accordance with Article 1.10.03 and State of Connecticut law.

9. Acceptance of Work: When the work is complete, an inspection shall be scheduled with the Engineer. The Engineer will note all deficiencies including, but not limited to, areas exhibiting adhesion failure, cohesion failure, tracking of filler material, and missed cracks. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

**Method of Measurement:** This work will be measured by the total number of linear feet of cracks filled as indicated in the Contract plans and as measured, verified, and accepted by the Engineer.

**Basis of Payment:** This work will be paid for at the Contract unit price per linear foot for "Filling Joints and Cracks in Bituminous Concrete Pavement" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

Pay Item	Pay Unit
Filling Joints and Cracks in Bituminous Concrete Pavement	l.f.

**ITEM #0406314A – 80 MIL PAVEMENT MARKING GROOVE 5” WIDE**

**ITEM #0406315A – 80 MIL PAVEMENT MARKING GROOVE 7” WIDE**

**ITEM #0406316A – 80 MIL PAVEMENT MARKING GROOVE 9” WIDE**

**Description:**

Work under this item shall consist of grooving the pavement surface in a continuous or regularly spaced fashion for the placement of recessed pavement markings. Unless otherwise noted, the groove shall be 1 inch wider than the anticipated pavement marking. The groove for double-yellow centerline markings shall consist of two grooves, each 5 inches wide.

**Groove Width:** 5 inches wide for 4-inch markings  
7 inches wide for 6-inch markings  
9 inches wide for 8-inch markings

**Groove Depth:** 0.080 inches  $\pm$  0.010 inches

The groove shall not be installed continuously for intermittent pavement markings, but only where markings are to be applied.

The groove shall not be installed on metal bridge decks, on bridge joints, at drainage structures, at loop detector sawcut locations, or in other areas identified by the Engineer.

**Equipment:**

The grooving equipment shall be equipped with a free-floating, depth-controlled head which provides a consistent groove depth over irregular pavement surfaces. The grooving head shall only be equipped with diamond saw blades. Any ridges in the bottom of the groove shall have a maximum height of 0.015 inches.

The grooving equipment shall be capable of installing a groove 6 inches away from any vertical or horizontal obstruction.

**Construction Methods:**

The pavement marking groove shall be installed in accordance with the current ConnDOT pavement marking standard drawings.

The Contractor shall establish control points for measuring offsets and pre-marks along the entire distance of pavement being grooved. Prior to installation of the groove, the Contractor shall verify the equipment is capable of installing the correct width and spacing of the groove. The

ITEM #0406314A

ITEM #0406315A

ITEM #0406316A

control points, pre-marks, and equipment will be reviewed by the Engineer prior to commencement of the work.

The groove will be considered defective if any edge of the groove varies more than 0.25 inch in a 10-foot length, or if the alignment of the groove visibly deviates from the normal alignment of the road.

Final Cleaning: The Contractor shall immediately collect all debris and dust resulting from the grooving operation by vacuuming the pavement groove and adjacent pavement surface. Collected debris and any waste material shall be properly disposed of by the Contractor.

The work area shall be returned to a debris-free state prior to re-opening to traffic.

**Repair of Unacceptable Groove:**

The Contractor shall repair any defective groove(s) to the satisfaction of the Engineer. All work in conjunction with this repair shall be performed at no additional cost to the State.

**Pavement Marking Requirements:**

The Contractor is required to install permanent epoxy resin pavement markings in the grooves before the lane or roadway is opened to live traffic. If the permanent pavement markings cannot be installed before the lane or roadway is opened to live traffic, temporary 0.005-inch hot-applied waterborne pavement markings without glass beads shall be installed before the lane or roadway is opened to live traffic at no additional cost to the State. Within 10 calendar days, permanent epoxy resin pavement markings shall be applied in the groove over the 0.005-inch hot-applied waterborne pavement markings.

**Groove Depth Gauge:**

The Contractor shall supply the Engineer with two accurate, easily readable gauges with which to verify groove depth for the duration of the project. The gauges shall be delivered no less than one week prior to the anticipated beginning of grooving operations. Gauges shall be accompanied by manufacturer's instructions for their use. The gauges will be returned to the Contractor at the conclusion of the project.

**Method of Measurement:**

This work will be measured for payment by the number of linear feet of groove installed in the pavement as ordered and accepted by the Engineer.

**Basis of Payment:**

ITEM #0406314A  
ITEM #0406315A  
ITEM #0406316A



This work will be paid for at the contract unit price per linear feet of “Pavement Marking Groove” installed in the pavement and accepted. This price shall include cleaning of the pavement, all materials, equipment, tools, depth gauges, and labor incidental thereto, and disposal of any waste material resulting from the operation.

**Pay Item**

80 Mil Pavement Marking Groove 5” Wide

80 Mil Pavement Marking Groove 7” Wide

80 Mil Pavement Marking Groove 9” Wide

**Pay Unit**

L.F.

L.F.

L.F.

ITEM #0406314A  
 ITEM #0406315A  
 ITEM #0406316A

## **ITEM #0406995A - ILLUMINATION FOR NIGHT CONCRETE SLIP FORMING (MOBILE)**

**Description:** Work under this item shall consist of providing illumination for concrete slip forming operations during hours of darkness in accordance with this specification.

### **Construction Methods:**

**1. Lighting for Night Concrete Slip Forming:** For slip forming operations which will be accomplished during hours of darkness, the Contractor shall provide lighting as described below for the purpose of illuminating the work area and equipment. The Contractor shall be responsible for furnishing, mounting, and maintaining in proper working order all of the required lighting. The Engineer will inspect the lighting equipment for conformance to this specification and for proper working order, prior to allowing a nighttime paving operation to commence or continue. A sufficient number of spare lamps shall be available on site as replacements in the event of failures. All light fixtures shall be suitable for outdoor use and wet locations. The contractor shall submit catalog cuts of all lighting equipment intended to be used under this item to the Engineer for approval.

The following minimum standards for illumination shall be maintained at all times during night operations.

**A. Minimum Illumination for Each Concrete Slip Form Paver:** Each paver shall be equipped with a system of four (4)-8 foot (2.4 meter) high output (HO) fluorescent light units mounted on a unit adjustable to a maximum height of sixteen (16) feet (5 meters) above the roadway. The fluorescent light units shall be mounted so as to fully illuminate the slip form paver. The system shall provide a minimum width across the paver of ten (10) feet (3 meters).

Each paver shall also be equipped with five (5)- 150 Watt parabolic aluminized Reflector (PAR) spot lamps; four (4) to provide illumination directly behind the paver for a minimum of fifty (50) feet (15 meters) in length, and one (1) to illuminate the guide line.

To provide illumination in front of the paver, two (2)- 1,000 W PAR 64 Narrow Spotlights (NSP) shall be mounted with one (1) at each end of the fluorescent light units and shall be directed fifty (50) feet (15 meters) beyond the concrete truck which is providing concrete to the paver.

**B. Minimum Supplementary Lighting:** To supplement the lighting provided on the above equipment and to provide illumination of the work area(s), two (2) pickup trucks equipped with floodlights shall be provided by the Contractor. The floodlights can either be mounted on the truck or mounted on a trailer.

One truck shall provide illumination at the end of the actual work area behind the concrete slip forming paver for any hand work, joint installation, and curing procedures and shall move forward as the operation progresses. The second truck shall be used to illuminate work areas in

advance of the paver for any preparation work to accept the paver (i.e. excavation, guide adjustments) as required by the Engineer

Each lighting system for each pickup truck shall have a minimum of three (3) - 250 watt metal halide floodlights; one (1) wide beam and two (2) narrow beam. The floodlights shall be aimed in a forward direction over the truck cab but shall also have the capability of being adjusted and aimed in any direction, if required. The pickup truck and the trailer shall be considered one unit if a trailer-mounted floodlight system is provided.

**2. Electric Power:** The Contractor shall provide portable generators on the pavers and trucks of the type, size, and wattage to adequately furnish 120V AC electric power to operate the specified lighting equipment. A sufficient amount of fuel shall be available on site. There shall be switches to control the various lights. Wiring shall be weatherproof, and installed to all safety codes. It shall be the Contractor's responsibility to ensure that lighting fixture and generator electrical ratings are compatible.

**3. Equipment Mounting:** The Contractor shall design and fabricate brackets and hardware for mounting the light fixtures and generators to suit the configuration of the slip forming pavers. Mountings shall be designed so that light fixtures will be located such that they may be aimed as specified to provide proper lighting. Mounting brackets and fixtures shall not interfere with the equipment operator, or any overhead structures. Mounting brackets and hardware shall provide for a secure connection of the fixtures, minimize vibration, and allow for adjustable positioning and aiming of the light fixtures. Lighting shall be aimed to maximize the illumination on each task, and minimize glare to passing and opposing traffic.

**4. Summary:** The work area, for the purpose of this specification, shall be defined as the area encompassing the placement of concrete curbing which also includes handwork, finishing work, joint installation, and preparation work. The average illumination throughout the work area shall be ten (100 foot-candles.)

The PAR 64 lamps shall have a controlled beam which will limit glare for motorists on the opposite side of the road. By aiming the light only in the forward direction, the glare for motorists in the restricted lanes adjacent to the work area will be minimized. The fluorescent light units at the pavers shall be the only lights aimed toward the motorists, but these shall provide a minimum of glare by their nature.

The illumination on the Project shall be monitored for conformance to the specifications set forth herein. Substandard illumination in any area (work area or equipment lighting) may be sufficient reason for the Engineer to direct the stoppage of all work until the substandard situation is corrected.

All lighting units shall be placed in such a manner as to avoid shadows on the work area or the travel way and to prevent excessive glare to the motorist.

The Contractor shall submit for approval a layout of its proposed lighting complete with equipment specifications, photometrics, and calculations. Illumination layouts shall be prepared for a typical work area and for each specific area, if required. No night work shall be started without prior written approval of the illumination layout from the Engineer. Approval shall be obtained from the Engineer prior to the purchase or rental of any lighting equipment. Any

alterations or revisions to a previously approved layout must be resubmitted to the Engineer for approval prior to being utilized and paid in a contract.

The Contractor shall provide the Engineer, for the duration of the project and at no additional compensations, a hand-held digital light meter, complete with instructions capable of measuring one (1) to one hundred (100) foot candles for the purpose of monitoring illumination specifications. Light meters are to be returned to the Contractor upon completion of the project.

**Method of Measurement:** Illumination for night concrete slip forming will be measured for payment by the number of hours the lighting is in operation and in accordance with the specifications stated herein. If at any time during the paving operations any portion of the system malfunctions, the illuminations shall not be measured for payment.

The minimum hours of payment shall be four hours for the period in which the illumination is in place and functioning for any one shift within a twenty-four hour period.

**Basis of Payment:** Payment will be made at the unit bid price, per hour, for the actual hours the equipment is in use during any portion of a shift which consists of normal work hours between dusk and dawn. The unit price per hour will be full compensation for the purchase or rental of all floodlighting equipment, staging or tripods, generators, wiring and any equipment necessary or incidental for the installation and operation of a lighting system as specified in this item. All lighting equipment shall remain the property of the contractor upon completion of the contract.

**Pay Item**

Illumination for Night Concrete Slip Forming(Mobile)

**Pay Unit**

Hour

## **ITEM #0406999A - ASPHALT ADJUSTMENT COST**

**Description:** The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of hot mix asphalt (HMA), Polymer Modified Asphalt (PMA), and Ultra-Thin Bonded Hot-Mix Asphalt mixtures completed and accepted during the Contract.

**The Asphalt Price is available on the Department of Transportation website at:**

<http://www.ct.gov/dot/asphaltadjustment>

### **Construction Methods:**

An asphalt adjustment will be applied only if all of the following conditions are met:

#### **I. For HMA and PMA mixtures:**

- a. The HMA or PMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
- b. *The total quantity for all HMA and PMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.*
- c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.

#### **II. For Ultra-Thin Bonded HMA mixtures:**

- a. The Ultra-Thin Bonded HMA mixture for which the adjustment would be applied is listed as a Contract item.
- b. The total quantity for Ultra-Thin Bonded HMA mixture in the Contract exceeds:
  - i. 800 tons if the Ultra-Thin Bonded HMA item has a pay unit of tons.
  - ii. 30,000 square yards if the Ultra-Thin Bonded HMA item has a pay unit of square yards.

Note: The quantity of Ultra-Thin Bonded HMA measured in tons shall be determined from the material documentation requirements set forth in the Ultra-Thin Bonded HMA item Special Provision.

- c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
- d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the Ultra-Thin Bonded HMA mixture system.

#### **III. Regardless of the binder used in all HMA or PMA mixtures, the Asphalt Adjustment Cost will be based on PG 64-22.**

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor®** furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area,” F.O.B. manufacturer’s terminal.

The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US\$/ST).

**Method of Measurement:**

Formula: $\text{HMA} \times [\text{PG}\% / 100] \times [(\text{Period Price} - \text{Base Price})] = \$ \underline{\hspace{2cm}}$
---

where

- **HMA:**
  1. For HMA, PMA, and Ultra-Thin Bonded HMA mixtures with pay units of tons:  
The quantity in tons of accepted HMA, PMA, or Ultra-Thin Bonded HMA mixture measured and accepted for payment.
  2. For Ultra-Thin Bonded HMA mixtures with pay units of square yards:  
The quantity of Ultra-Thin Bonded HMA mixture delivered, placed, and accepted for payment, calculated in tons as documented according to the Material Documentation provision (Construction Methods, paragraph G) of the Ultra-Thin Bonded HMA Special Provision.
- **Asphalt Base Price:** The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- **Asphalt Period Price:** The asphalt price posted on the CTDOT website during the period the HMA or PMA mixture was placed.
- **PG%:** Performance-Graded Binder percentage
  1. For HMA or PMA mixes:
    - $\text{PG}\% = 4.5$  for HMA S1 and PMA S1
    - $\text{PG}\% = 5.0$  for HMA S0.5 and PMA S0.5
    - $\text{PG}\% = 6.0$  for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25
  2. For Ultra-Thin Bonded HMA mixes:  
 $\text{PG}\% = \text{Design \% PGB}$  (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

The asphalt adjustment cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

**Basis of Payment:** The "Asphalt Adjustment Cost" will be calculated using the formula indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

Pay Item  
Asphalt Adjustment Cost

Pay Unit  
est.

## **ITEM #0503251A – CLEAN HISTORIC CONCRETE BRIDGE (SITE NO.2)**

## **ITEM #0503252A - CLEAN HISTORIC CONCRETE BRIDGE (SITE NO. 3)**

## **ITEM #0503253A - CLEAN HISTORIC CONCRETE BRIDGE (SITE NO. 4)**

**Description:** The work includes the cleaning of exposed concrete surfaces of historic bridges within the limits specified by the Engineer, including general and specialized cleaning to remove soil, stains, carbon deposits, biological growth, oils, plants, vines, bird guano, and all other substances specified below. Also included is the full containment, collection and proper disposal of all wash water and materials removed from the concrete surfaces during cleaning operations.

This work will include the trial demonstration by the Contractor of specific cleaning methods on selected areas of the bridge surface to demonstrate the adequacy of materials and methods to be used for cleaning each type of condition on areas of the bridge for approval by the Engineer.

The Contractor to perform this work shall demonstrate a minimum of five (5) years of successful cleaning experience in masonry restoration projects for historic structures. The Contractor shall provide names, dates, and locations of a minimum of three (3) similar historic structure projects.

This provision contains recommendations for materials which may be TOXIC. The manufacturer's literature on application techniques, appropriate protection for workers and disposal procedures for materials should be complied with in conjunction with all federal and state regulations. All required Federal and State permits shall be obtained prior to use and/or discharge.

### **Materials:**

#### **1. Cleaning Tools and Product Data:**

The Contractor shall submit manufacturer's technical data for each cleaning product proposed to be used, including written instructions by the manufacturers for their application and use, and Material Safety Data Sheets (MSDS). The Contractor shall include test reports and certifications substantiating product compliance with requirements.

**Recommended Products:** Products capable of removing biological and atmospheric stains in historic concrete shall be either of the following, or an approved equal:

**EnviroKlean BioKlean® (by Prosoco, Inc.)** Two part cleaner and activator system.

**Safe n' Easy Architectural Cleaner and Restorer** (by Dumond Chemicals)

The use of acidic cleaners shall not be permitted.

All water used in the cleaning operation shall be potable, free of deleterious quantities of iron, alkalis, oil or other staining materials. Prior to the cleaning, a sample of the water shall be tested to determine that the water will not cause staining. The Contractor shall provide all necessary filters at the water source to remove mineral contents that cause the staining. No water is to be drawn from ponds or streams without the approval by the Engineer and the Office of Environmental Planning. At no time will a general permit limit be reached for the removal of water.

Cleaning products shall be applied using synthetic rollers, soft-bristled brushes, or may be spray applied. The use of wire brushes or steel wool is not permitted.

Following manufactures recommendations rinsing shall be carried out carefully to avoid inadequate rinsing, which can lead to residues that may stain the cleaned surface. Masonry-washing equipment shall not generate greater than 400 psi. (2.8 MPa) Water flow rates of 6-8 gallons (23-31 L) per minute are the best water/pressure combinations. Heated water (150-180°F, 65-82°C) may improve cleaning efficiently.

## **2. Delivery, Storage and Handling:**

All materials shall be delivered to the site in the Manufacturer's original and unopened containers and packaging, bearing labels as to the type of material, brand name and Manufacturer's name. Delivered materials should be identical to tested materials.

Material shall be stored off the ground in a clean, dry location. All materials that are damaged or are otherwise unsuitable for use shall be removed from the site.

All materials shall be handled, stored and treated in strict accordance with manufacturer's instructions, with regard to application and shelf life, spillage, clean-up, safety precautions, and protective means and methods.

## **Construction Methods:**

- 1. Cleaning Program:** Prior to commencing cleaning operations, the Contractor shall submit a written cleaning procedure plan including all materials, methods, equipment, and staging for access proposed for each phase of cleaning including protection of surrounding materials during operations. The written cleaning procedure shall include all cleaning products and chemical components to be used, method of application, dilution of the application, temperature of application, length of time of surface contact, method of rinsing (*temperature, pressure, and duration*), and repetition of procedures, methodology for full collection of all water, proper disposal of all materials. An acceptable ambient temperature range shall also be maintained for application of cleaning products and shall follow in accordance with the manufacturer's recommendations and specifications.



2. **Protection Program:** Prior to commencing the cleaning operations, the Contractor shall submit for approval, a written description of proposed materials and methods of protection for preventing damage to adjacent materials, soil, water bodies, wetlands, wells, vegetation, vehicular and pedestrian traffic, and adjacent property.
3. **Demonstration Test Area:** Prior to commencing the cleaning operations, the Contractor shall demonstrate a trial application of the proposed cleaning method on a portion of the wingwall or abutment face, as directed by the Engineer. The surface area of the cleaning demonstration test shall be approximately six (6) by six (6) feet (610 x 610mm) in area. The demonstration test area shall be cleaned using methods, materials and working pressures previously submitted and approved. The demonstration test shall be performed in the presence of the Engineer and Conservator.

Where chemical poultices are tested, perform testing in the presence of the Manufacturer's representative.

The production work of cleaning the bridge concrete surfaces shall not begin without approval from the Engineer of the cleaning methods, working pressures, materials, equipment used. The evaluation by the Engineer of the acceptability of the Contractor's proposed cleaning method will include a seven (7) day observation period after completion of the trial cleaning demonstration for verification that the requested cleaning method has caused no surface damage to historic concrete surfaces.

#### 4. **Preparation:**

- a. Demonstration Test Area: Prepare test area as specified above.
- b. Cleaning Program: The cleaning program shall be submitted as specified above.
- c. Protection: All painted and unpainted metal structure, railings and decorative elements shall be protected from contact with chemical cleaners by covering with polyethylene film, waterproof masking or other proven measures, firmly fixed and sealed to the surface.

The Contractor shall comply with the cleaning product manufacturer's recommendations for protecting adjacent surfaces from exposure to their products.

Over-spray and splashing of the cleaning materials shall be prevented.

All persons, soil, surrounding vegetation and adjacent property shall be protected from injury, damage and contamination at all times during the cleaning process.

#### 5. **General Cleaning:**

- a. Dilution of cleaning materials shall be with clean water in accordance with the manufacturer's printed instructions.
- b. Cleaning projects should be carried out starting at the bottom and proceeding to the top of the cleaning area.
- c. Always keep surfaces wet below the area being cleaned.
- d. All bridge surfaces shall be cleaned in accordance with the cleaning procedure approved by the Engineer. The surface cleaning should be done in strict accordance with the methods approved by the Engineer on the demonstration test area.
- e. All painted and unpainted metal structure, railings, and decorative elements shall be protected from contact with chemical cleaners by covering with polyethylene film, waterproof masking or other proven measures, firmly fixed and sealed to the surface.

## 6. Specialized Cleaning:

Additional and more local cleaning methods are to be used, subject to the Engineer's approval. Detergents and other non-detrimental chemicals can be applied to the surface with fibrous, non-ferrous soft bristle brushes, spray, or roll applied methods. When soil is sufficiently loosened, the concrete shall be thoroughly rinsed so that no residue remains. Poultices may also be used if approved by the Engineer.

Prior to any stain removal treatment, thoroughly wet the surface of the concrete around the stained area with clear, clean water at low pressure. Apply specialized stain removers as specified by the manufacturer and rinse thoroughly with clean, clear water at low pressures (100 – 300 psi. (0.7 – 2.1 MPa))

**Method of Measurement:** Work under this item will be paid for at the contract lump sum price for each bridge site, and will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract lump sum price at each bridge site for "Clean Historic Bridge (Site No. X )" which price shall include all equipment, tools, labor and work incidental thereto, including acquisition of required permits, containment, collection and proper disposal of all waste, wash water and other cleaning elements used. This price shall also all work, materials, and equipment incidental to providing staging for Contractor and inspection access and debris shields as required to protect traffic from the cleaning operation.

Removal of Graffiti, where directed by the Engineer, shall be paid for under the special provision item, "Removal of Graffiti from Historic Concrete", after the bridge has been cleaned in accordance with this specification.

The removal and resetting of fence for the purpose of Contractor access at miscellaneous locations shall be included in the general cost of work for this item and shall not be measured for payment.

Pay Item	Pay Unit
Clean Historic Concrete Bridge (Site No. 2)	l.s.
Clean Historic Concrete Bridge (Site No. 3)	l.s.
Clean Historic Concrete Bridge (Site No. 4)	l.s.

## **ITEM #0503307A – RESTORATION OF METAL FEATURES**

This item shall conform to the requirements of **Section 5.03**, M.07.01, and M.07.02 of the Standard Specifications, Form 818, supplemented and amended as follows:

**Description:** This work includes the cleaning, repair, replacement and re-finishing of ornamental metal railings and decorative panels of historic bridges within the limits specified by the Engineer. Included are the requirements for containment and disposal of existing paint finishes.

The Contractor to perform this work shall demonstrate a minimum of five (5) years of successful cleaning experience in **masonry** restoration projects for historic structures. The Contractor shall provide names, dates, and locations of a minimum of three (3) similar projects.

This provision contains recommendations for materials which may be TOXIC. The manufacturer's literature on application techniques, appropriate protection for workers and disposal procedures for materials should be complied with in conjunction with all federal and state regulations. All required Federal and State permits shall be obtained prior to use and/or discharge. Additional information on paint removal and definitions of the terms used within this special provision may be obtained from the latest edition of the "SSPC-GUIDE 6 for Containing Debris Generated during Paint Removal Operations" (SSPC Guide 6).

**Testing:** Prior to commencing restoration operations, the Contractor shall conduct sampling of the existing finishes and metals to be delivered to an architectural conservator for analysis and identification. The finishes will undergo a historic paint analysis to determine the historic color and appearance of the bridge. The microscopic examination of the layers of paint will identify the substrate, primer(s) and successive finish layers using the Federal Standard No. 595a Colors numbering system. Similarly, the Contractor is responsible for identifying the type of metal and alloys used in the construction of the bridge features. This information will be used to select the materials that will be used to repair or replace damaged and missing elements in kind.

### **Materials:**

**Repair Materials:** Selection of repair materials for metal will be based on the testing and identification of the extant original materials on the bridge. According to the drawings, Bridge #00724 contains steel, wrought iron, and cast iron elements. This will need to be verified through testing. Refer to the following for each type of metal/alloy being repaired:

**Wrought Iron and Steel:** Repair steel elements in kind, matching the bar stock in alloy content, dimension and finish. Mild Steel (steel that contains between 0.20 – 0.25% carbon) may also be used to repair or replace both steel and wrought iron elements.

**Cast Iron:** Replace missing cast iron elements in kind.

ITEM #0503307A

Coating Systems: Ensure compatibility between the each type of coating by using primers, undercoats and finish coats that are produced by the same manufacturer. Follow manufacturers' instructions regarding the preparation of each coating in the system. Either of the following manufacturers' systems are approved for use:

Tnemec Products:	Primer: Series 394 PerimePrime Finish Coat: Series 27 Typoxy or Series 73 Endura-Shield
Sherwin-Williams Products:	Primer: Pro-Cryl Universal Primer Finish Coat: Sher-Cryl HPA

or equal approved by Engineer.

Fasteners: Unless otherwise directed by the Engineer, all fasteners are to be stainless steel.

### **Construction Methods:**

Preparation: Examine substrates and conditions under which coatings will be applied for compliance with requirements on applying coatings. Surfaces to receive coatings must be thoroughly dry and free of grease, oil and soiling before coatings are applied.

Containment of Paint Debris: A containment enclosure or enclosures shall be erected to collect the paint debris. This containment enclosure shall be designed and erected to contain, as well as facilitate the collection of debris from the paint removal operations. The containment enclosure shall conform to the requirements found within the SSPC Guide 6. The class of the containment enclosure shall be a minimum of Class 3P or Class 3C depending upon the method of removal, modified to include paragraphs A) through E).

- A) The containment materials shall be air and water impenetrable and fire resistant.
- B) With the exception of the entryways, all seams in the containment enclosure shall be lapped a minimum of 600 mm and shall be tied off at intervals not to exceed 300 mm.
- C) All attachments to bridge parapets and/or the underside of the bridge deck shall be sealed to prevent the escape of dust and debris
- D) The area between beams under the bridge deck shall be sealed to prevent the escape of dust and debris.
- E) Drawings and details of the containment enclosure shall be submitted to the Engineer for review prior to any paint removal. Review of the containment enclosure by the Engineer shall in no way relieve the Contractor of his responsibility for the containment enclosure.

Substrate Surface Preparation: Prepare metal elements by removing existing coatings, localized corrosion and scale to a minimum of SSPC-SP3 Power Tool Cleaning. Do not allow more than 24 hours to pass before applying a primer coat to protect the newly prepared metal. Protect adjacent materials that are not to receive coatings by masking with painter's tape and drop cloths.

ITEM #0503307A

Application of Coatings: Apply material by brush, roller, or spray strictly according to the manufacturer's directions. Use brushes best suited for the material being applied. Use rollers as recommended by the manufacturer for the material and texture required.

- Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
- Apply material at the coverage rate recommended by the manufacturer unless otherwise indicated.
- The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Where sanding is required, according to the manufacturer's directions, sand between applications to produce a smooth, even surface.
- Apply finish coat within 14 days of primer application. Select a primer color that is in the family range as the finish coat, but different enough to discern holiday and incomplete coverage of the finish coats occurs.
- When undercoats or other conditions show through the final coat, apply additional coats until the cured film has a uniform coating finish, color, and appearance. Give special attention to edges, corners, crevices, welds, exposed fasteners, and similar surfaces to ensure that they receive a dry film thickness equivalent to that of flat surfaces.

At the end of each work day, remove rubbish, empty paint cans, and other discarded materials from the site.

**Method of Measurement:** This work will be paid for on a lump sum basis and will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract lump sum price for "Restoration of Metal Features" complete in place, which shall include all materials, containment, testing and analysis of paint, labor and incidentals thereto.

ITEM #0503307A

## **ITEM #0520041A - PREFORMED JOINT SEAL**

**Description:** Work under this item consists of furnishing and installing a preformed joint seal as shown on the plans. Work also includes a pre-installation survey to measure the pavement depth at all locations where the joint meets the curb.

**Materials:** One of the following Preformed Joint Seals specified on the plans shall be supplied:

V-Shaped Silicone Seals:

1. Silicoflex:  
RJ Watson, Inc.  
11035 Walden Ave  
Alden, New York 14004  
Tel: (716) 901-7020  
Website: <http://www.rjwatson.com>
2. V-Seal:  
D.S. Brown Company  
300 East Cherry Street  
North Baltimore, Ohio 45872  
Tel: (419) 257-3561  
Website: <http://www.dsbrown.com>

Foam-Supported Silicone Seals:

3. Bridge Expansion Joint System (B.E.J.S.):  
EMSEAL Joint Systems Ltd.  
25 Bridle Lane,  
Westborough, MA 01581  
Tel: (508) 836-0280  
Website: <http://www.emseal.com>
4. Wabo FS Bridge Seal  
Watson Bowman Acme Corp.  
95 Pineview Drive  
Amherst, NY 14228  
Tel: (716) 691-9239  
Website: <https://wbacorp.com/products/bridge-highway/joint-seals/wabofsbridge/>

When foam-supported silicone joint seals are the only type allowed on the plans (such as at bridge joints that extend through sidewalks), the CTDOT will consider products from other foam-supported silicone joint manufacturers, if the products have been installed by another State Department of Transportation, are functioning successfully in a similar climate to Connecticut's for at least one year, and are deemed by

the CTDOT to be suitable for use in the specific application for which the Contractor is requesting. To be considered, the Contractor shall submit documentation indicating the product name, manufacturer, the contact information for a Department of Transportation official who can confirm the successful installation and continued success of the product, the date of installation and the nature of the installation, including thermal movement range and skew of the installed joint.

A Materials Certificate for all components of the selected preformed joint seal shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07

**Construction Methods:** All work at each joint location shall be accomplished in accordance with “Maintenance and Protection of Traffic” and “Prosecution and Progress.”

Submittals:

Prior to ordering preformed joint seals, and prior to forming block-outs for the preformed joint seals in the headers, the Contractor shall submit the following to the Engineer:

- The Manufacturer and product information of the selected joint system;
- Material safety data sheets (MSDS) and technical product information;
- Name and credentials of a qualified technical representative supplied by the manufacturer and acceptable to the Engineer. This person shall be available to provide assistance at the beginning of the work and be available to provide training and guidance throughout the project.
- A detailed, step-by-step installation procedure, including surface preparation, splicing of the preformed joint seal, and a list of the specific equipment to be used for the installation.

Installation: The technical representative of the accepted joint system shall be notified of the scheduled installation a minimum of 2 weeks in advance and be present to provide direction and assistance for the first joint installation and succeeding joint installations until the Contractor becomes proficient in the work and to the satisfaction of the Engineer.

The minimum ambient temperature for installing any of the qualified, preformed joint seals is 40°F and rising. When the manufacturer’s requirement for minimum installation temperature is greater than 40°F, the manufacturer’s requirement will govern.

All concrete surfaces to which sealing glands will be bonded shall be prepared in accordance with International Concrete Repair Institute (ICRI) concrete surface profile standards. The minimum acceptable surface profile is CSP2 (grinding), but CSP3 (light abrasive blast) is preferred. Any discontinuities or sharp projections into the plane of the joint shall be ground smooth prior to blasting. Whenever abrasive blast cleaning is performed, the Contractor shall take adequate measures to ensure that the abrasive blast cleaning will not cause damage to adjacent traffic or other facilities. Traffic will not be allowed to pass over the joint after blasting has occurred.



Following blasting, the joint surfaces shall be wiped down or blown clean as recommended by the manufacturer.

The joint surfaces shall be completely dry before installing any of the components of the selected joint seal. The selected joint seal shall not be installed immediately after precipitation or if precipitation is forecast. Joint preparation and installation of the selected preformed joint seal must be done during the same day.

The selected joint sealing system shall be installed continuously with no field splices in the preformed seal in the roadway section, unless field splices are allowed by the manufacturer of the selected preformed joint seal. In no case shall field splices of the preformed joint seal be allowed in a wheel path or within the roadway shoulder. When splices cannot be avoided due to traffic constraints, the splice shall be at a painted lane line.

After the joint seal has been installed, water shall not be able to penetrate the joint. Any joint seal that does not effectively seal against water shall be removed and replaced at the Contractor's expense.

**Method of Measurement:** This work will be measured for payment by the number of linear feet of preformed joint sealing system installed and accepted. The measurement will be made along the centerline of the joint at the top surface of header, curb, sidewalk and parapet.

**Basis of Payment:** This work will be paid for at the Contract unit price per linear foot for "Preformed Joint Seal," complete in place, including all materials, equipment, tools, and labor incidental thereto.

The Contract unit price shall include the cost of assistance from a technical representative of the selected joint system.

Pay Item	Pay Unit
Preformed Joint Seal	l.f.

## **ITEM #0601109A - PRECAST CONCRETE WALLS**

**Description:** Work under this item shall consist of furnishing and installing reinforced precast concrete wingwalls, consisting of stems, footings and headwalls, in accordance with the details shown on the plans, in accordance with these specifications and as ordered by the Engineer.

**Materials:** The concrete mix design shall meet the requirements of M.03.02, Class PCC05562, and shall be submitted to the Engineer.

All reinforcing steel, including dowel bar mechanical connectors, shall be galvanized and meet the requirements of M06.01.

All threaded concrete inserts, lifting fixtures and miscellaneous hardware cast into precast concrete components shall be galvanized in accordance with ASTM A153 or ASTM B695, Grade 50, or be stainless steel.

Non-shrink grout shall meet the requirements of M.03.05, except that the non-shrink grout shall attain a minimum compressive strength of 3000 psi prior to the passage of flowing water over the grout.

Grouted splice couplers shall be used to join precast elements as shown on the plans. Provide couplers that use cementitious grout placed inside a steel casting. Threaded connections may be used for the portions of the coupler that are placed within the precast element if the strength of the coupler meets or exceeds the requirements of this specification. The following reinforcing splice couplers are acceptable for use provided that the requirements of this specification are met:

NMB Splice Sleeve  
Splice Sleeve North America, Inc.  
192 Technology Drive, Suite  
J, Irvine, California 926182409  
[www.splicesleeve.com](http://www.splicesleeve.com)

Dayton Superior DB Grout Sleeve  
Dayton Superior  
Corporate Headquarters  
7777 Washington Village Dr., Ste. 130  
Dayton, OH 45459  
[www.daytonsuperior.com](http://www.daytonsuperior.com)

Erico Lenton Interlok  
ERICO United States  
34600 Solon  
Road Solon,

Ohio 44139  
www.erico.com

Use grouted splice couplers that can provide 100 percent of the specified tensile strength of the connected bar. This equates to 90 ksi for reinforcing conforming to ASTM A615 and 80ksi for reinforcing conforming to ASTM A706. Supply grout for the inside the couplers from the manufacturer of the coupler that is matched to the certified test report for the coupler. Do not substitute any other grout in the couplers unless additional certified test reports are submitted for the grout/coupler system.

Shims for leveling the precast elements during installation shall comply with provisions of Form 818, for the applicable sections for materials utilized in the Contractor's design. Shims shall be designed by the Contractor to support the anticipated loads.

**Construction Methods:**

**1. Submittals:** All submittals shall include a title sheet with the following:

- Project number, town and crossing.
- Bridge number, when shown on the plans.
- Design code, as applicable.
- Contact information for fabricator – contact information shall include name and address of the fabricator and the name of contact person with phone number and email address.

**a) Shop Drawings – Precast Concrete Components:** Prior to fabrication the Contractor shall submit an individually packaged set of shop drawings to the Engineer for review in accordance with Article 1.05.02. No substitution of wall design shall be permitted. Each shop drawing package shall include details necessary for fabrication of each unique component, handling and installation of the precast concrete components, supporting documents for all materials incorporated into the precast concrete components and for other materials provided by the fabricator.

**b) Working Drawings - Lifting and Seating Devices:** Prior to fabrication, the Contractor shall submit working drawings and supporting computations for the embedded lifting and seating devices required for the handling and installation of the precast concrete components at each wall location to the Engineer for review in accordance with 1.05.02. Prior to applying load to the embedded devices, the concrete shall attain the minimum concrete compressive strength associated with the safe working load of the device.

**c) Working Drawings - Installation of Precast Concrete Components:** Prior to installation of the precast concrete components, the Contractor shall submit working drawings and supporting computations for the lifting and placement of the precast concrete components, to the Engineer for review in accordance with 1.05.02. Cranes shall be operated in accordance with the Connecticut Department of Public Safety regulations. The Contractor shall be responsible for verifying the weight of each lift. The working drawing submittal shall include, but not be limited to the following:

- Plan of the work area showing all structures, roads, railroad tracks, Federal and State regulated areas as depicted on the plans, overhead and subsurface utilities, property lines, or any other information relative to erection. No picks shall be allowed over vehicular, pedestrian, railway or vessel traffic.
- A detailed narrative describing the lifting and installation sequence.
- Manufacturer's data sheet for the crane(s) including the load/capacity chart. The capacity of the crane shall be adequate for the total lift/pick load including rigging, spreaders and other materials. In the area of railroads and navigable waterways, the capacity shall be as required by the regulatory authorities.
- Manufacturer's data sheets and product data sheets for all rigging (slings, spreader bars, blocks, etc.), lifting devices, and other connecting equipment and hardware listing the number, type, size, arrangement and capacity of each.
- Location of each crane for each pick.
- Crane support measures, including any support beneath the outriggers such as bearing pads, crane mats, planking or special decking, or other means to transfer the crane's total weight (including the lifted load) into the earth or structure beneath it.
- Delivery location of each component.
- Boom length and the lift and setting radius for each pick (or maximum lift radius).
- Pick point location(s) on each component.
- Lifting weight of each component including rigging (clamps, spreader beams, etc.)

**d) Product Data – Field Installed Materials:** Prior to installation of the precast concrete components, the Contractor shall submit product data for field installed materials, such as non-shrink grout, etc., not addressed in other submissions to the Engineer for review in accordance with 1.05.02.

**3. Fabrication and Manufacture:** The fabrication and manufacture of the precast concrete components shall meet the requirements of M.08.02-4 as supplemented by the following:

**a) Forms and Forming Material:** Forms shall be mortar-tight and sufficiently strong to prevent misalignment of adjacent precast sections. Forms shall be constructed to allow their removal without damage to the concrete. A positive means of supporting reinforcing cages in place during forming shall be required.

The forms shall not be removed until the concrete is sufficiently strong to avoid possible damage to the concrete. Forms shall not be removed without approval being granted by the Engineer. Damage to the concrete due to early removal of the forms shall be cause for rejection.

All forming materials used for casting cylindrical openings for lifting holes or holes for grouting deformed steel bars shall be removed. All non-plastic material used as forms for casting weepholes shall also be removed. Concrete shall not be placed in the forms until the Engineer has inspected the forms and approved all the materials in the precast elements.

**b) Reinforcement Steel:** Reinforcing steel shall be fabricated and installed in accordance with Articles 6.02.03-2 through 6.02.03-8. The welding of reinforcement is not permitted.

**c) Placing Concrete:** Concrete shall not be deposited in the forms until the Contractor has inspected the reinforcing steel, including all other embedded components, and has documented such inspection.

Concrete shall not be deposited into the forms when the ambient temperature is below 40° F or above 100° F, unless adequate heating or cooling procedures are provided and have been previously approved by the Engineer. The concrete temperature shall be within the range of 60° F to 90° F at the time of placement.

Truck-mixed or transit-mixed concrete will not be allowed.

Production during the winter season, from November 15 to March 15 inclusive, will be permitted only in a completely enclosed structure of suitable size and dimension that provides a controlled atmosphere for the protection of both the casting operation and the product.

Outside concreting operations will not be permitted during rainfall unless the operation is completely under cover.

The concrete shall be vibrated internally, or externally, or both, as needed to provide adequate flow and consolidation of the concrete. The vibration shall be provided in such a manner as to avoid displacement of reinforcing steel, forms, or other components. There shall be no interruption in the placement of concrete. Concrete shall be placed and vibrated sufficiently to produce a surface free from imperfections such as honeycombing, segregation, cracking, or checking.

**d) Test Cylinders:** During the casting of the wall and footing sections, the Contractor shall make test cylinders under the supervision of a representative of the Department. A minimum of 4 cylinders shall be taken during each production run or as ordered by the Engineer. The dimensions and type of cylinder mold shall be as specified by the Engineer. Cylinders shall be cured under the requirements of ASTM C31 and shall be used to confirm that the concrete meets the requirements of M.03.02. The Engineer also reserves the right to request and test core specimens from the sections to determine their adequacy.

Any deficiencies noted in the components may be cause for rejection.

**e) Finishing:** All fins, runs, or mortar shall be removed from the concrete surfaces which will remain exposed. Form marks on exposed surfaces shall be smoothed by grinding. All exposed, outside concrete surfaces shall be given a grout clean-down finish in accordance with 6.01.03-10.

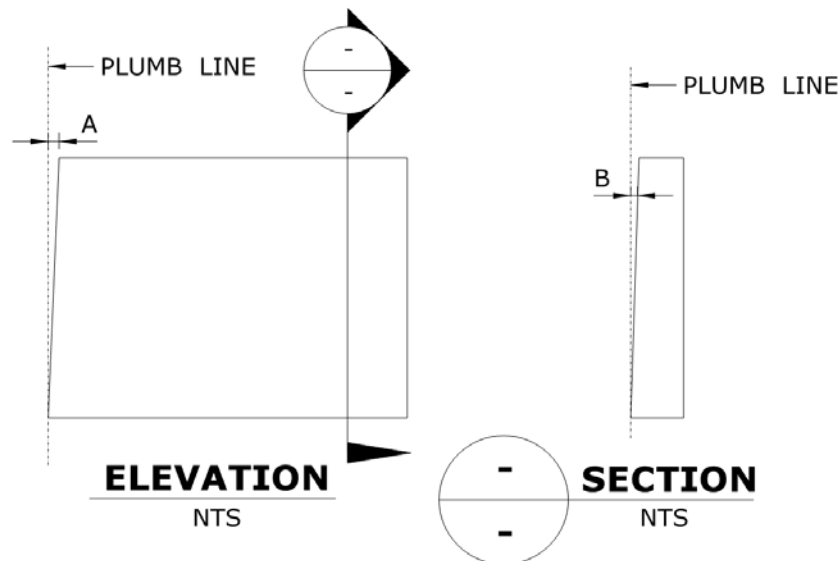
**f) Handling and Storage:** Any precast concrete components damaged during storage, transportation or handling shall be repaired or replaced by the Contractor, at its own expense, as directed by the Engineer.

**g) Repairs:** The Contractor shall submit to the Engineer, for review, any proposed methods or materials to be used in the repair of precast concrete components or defective surfaces. Precast concrete components with defective area greater than 10% as determined by the Engineer will be rejected.

**h) Working Lines:** One common working line shall be used for all transverse and longitudinal measurements.

**i) Fabrication Tolerances:** The length of each wall panel measured along its longitudinal axes shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ". The thickness of each wall panel shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ". The height of each wall panel, measured from the top of the footing to the top of the wall, shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ".

**j) Erection Tolerances:** The top of wall elevation shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ". The end squareness, dimension "A" in the elevation below, shall not exceed plus or minus  $\frac{1}{8}$ ". Dimension "B", as shown in the section below, shall not exceed plus or minus  $\frac{1}{4}$ " for every 10' of wall height.



**4. Prefabrication Meeting:** Upon Award the Contractor shall schedule a meeting with the fabricator's representative, designer, and Departments inspection personnel to assure understanding of the contract plans and specification and to coordinate work.

**5. Dry Fit:** The Contractor is required to dry fit elements prior to shipment to ensure that the elements can be properly joined in the field. The walls shall conform to all dimensions within

tolerances specified herein. All sections that will be joined with mechanical connectors shall be pre-assembled, complete with fasteners, to confirm alignment. The Department shall be given at least 2 working days' notice to inspect and evaluate the sections prior to shipping.

**6. Installation:** The installation of the precast concrete retaining walls and components shall be in accordance with the plans and the following:

- a) The installation of the precast concrete retaining wall sections shall proceed as required by the sequence of construction, stage construction plans, and the special provisions entitled "Prosecution and Progress" and "Maintenance and Protection of Traffic."
- b) The footings shall be set to the line and grade indicated on the plans or as directed by the Engineer. Placement of the footings shall not start until the Engineer has approved the depth of excavation and the suitability of the foundation material.

**7. Erection Tolerances:** The Contractor shall be responsible for ensuring the overall length of the wall meets the layout requirements on the plans within all acceptable tolerances as specified in the contract.

**Method of Measurement:** The work for the precast concrete walls will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract lump sum price for "Precast Concrete Walls", of the dimensions indicated, complete in place, which price shall include all equipment, materials, tools and labor incidental to the manufacture and installation of the precast concrete walls and footings as specified in the plans.

Pay Item	Pay Unit
Precast Concrete Walls	l.s.

## **ITEM #0601125A – PRECAST CONCRETE BOX CULVERT**

**Description:** Work under this item consists of furnishing and installing a precast concrete box culvert(s) as shown on the plans and as ordered by the Engineer. This item also includes all hardware, inserts, dowels for connections, reinforcing steel and joint materials as shown on the plans.

### **Materials:**

- The concrete mix design shall meet the requirements of M.03.02, Class PCC05562, and shall be submitted to the Engineer.
- All reinforcing steel, including dowel bar mechanical connectors, shall be galvanized and shall meet the requirements of M.06.01.
- All threaded concrete inserts, lifting fixtures, and miscellaneous hardware cast into precast concrete components shall be galvanized in accordance with ASTM A153 or ASTM B695 Grade 50. All portions of the lifting and seating devices shall be recessed from the finished concrete surface.
- Non-shrink grout shall meet the requirements of M.03.05 and be suitable for submerged applications.
- Gaskets shall meet the requirements of ASTM D1056, C1677 or C990.
- Geotextiles shall be the “Separation (High Survivability)” type and shall be selected from the Department’s Qualified Product List.

### **Construction Methods:**

#### **1. Submittals:** All submittals shall include a title sheet with the following:

- Project number, town and crossing.
  - Bridge number, when shown on the plans.
  - Design code, as applicable.
  - Contact information for fabricator – contact information shall include name and address of the fabricator and the name of contact person with phone number and email address.
- (a) **Shop Drawings - Precast Concrete Components:** Prior to fabrication, the Contractor shall submit an individually packaged set of shop drawings for the precast concrete components for each precast box culvert location to the Engineer for review, in accordance with the plans and 1.05.02. Each shop drawing package shall include details necessary for fabrication of each unique component, handling and installation of the precast concrete components, supporting documents for all materials incorporated into the precast concrete components and for other materials provided by the fabricator.
- (b) **Working Drawings - Lifting and Seating Devices :** Prior to fabrication, the Contractor shall submit working drawings and supporting computations for the embedded lifting and seating devices required for the handling and installation of the precast concrete components at each box culvert location to the Engineer for review in accordance with 1.05.02. Prior to applying load to the embedded devices, the concrete shall attain the minimum concrete compressive strength associated with the safe working load of the device.
- (c) **Working Drawings - Installation of Precast Concrete Components:** Prior to installation of the precast concrete components, the Contractor shall submit working drawings and



supporting computations for the lifting and placement of the precast concrete components, to the Engineer for review in accordance with 1.05.02. Cranes shall be operated in accordance with the Connecticut Department of Public Safety regulations. The Contractor shall be responsible for verifying the weight of each lift. The working drawing submittal shall include, but not be limited to the following:

- Plan of the work area showing all structures, roads, railroad tracks, Federal and State regulated areas as depicted on the plans, overhead and subsurface utilities, property lines, or any other information relative to erection. No picks shall be allowed over vehicular, pedestrian, railway or vessel traffic.
- A detailed narrative describing the lifting and installation sequence.
- Manufacturer's data sheet for the crane(s) including the load/capacity chart. The capacity of the crane shall be adequate for the total lift/pick load including rigging, spreaders and other materials. In the area of railroads and navigable waterways, the capacity shall be as required by the regulatory authorities.
- Manufacturer's data sheets and product data sheets for all rigging (slings, spreader bars, blocks, etc.), lifting devices, and other connecting equipment and hardware listing the number, type, size, arrangement and capacity of each.
- Location of each crane for each pick.
- Crane support measures, including any support beneath the outriggers such as bearing pads, crane mats, planking or special decking, or other means to transfer the crane's total weight (including the lifted load) into the earth or structure beneath it.
- Delivery location of each component.
- Boom length and the lift and setting radius for each pick (or maximum lift radius).
- Pick point location(s) on each component.
- Lifting weight of each component including rigging (clamps, spreader beams, etc.)

**(d) Product Data – Field Installed Materials:** Prior to installation of the precast concrete components, the Contractor shall submit product data for field installed materials, such as non-shrink grout, geotextile, etc., not addressed in other submissions to the Engineer for review in accordance with 1.05.02.

**2. Fabrication and Manufacture:** The fabrication and manufacture of the precast concrete components shall meet the requirements of M.08.02-4 as supplemented by the following:

- (a) Reinforcing Steel:** Reinforcing steel shall be fabricated and installed in accordance with Articles 6.02.03-2 through 6.02.03-5. The welding of reinforcement is not permitted.
- (b) Test Cylinders:** During the casting of the components, the Contractor shall cast a minimum of four 4 inch × 6 inch test cylinders in accordance with AASHTO T23 during each production run. Cylinders shall be cured under the requirements of ASTM C31 and shall be used to confirm that the concrete meets the requirements of M.03.02.
- (c) Placing Concrete:** Concrete shall not be deposited in the forms until the Contractor has inspected the reinforcing steel, including all other embedded components, and has documented such inspection.

Concrete shall not be deposited into the forms when the ambient temperature is below 40°F or above 100°F, unless adequate heating or cooling procedures have been previously

approved by the Engineer. The concrete temperature shall be 60°F to 90°F at the time of placement.

Truck-mixed or transit-mixed concrete will not be allowed.

Production during the winter season, from November 15 to March 15 inclusive, will be permitted only on beds located in a completely enclosed structure of suitable size and dimension that provides a controlled atmosphere for the protection of the casting operation and the product.

Outside concreting operations will not be permitted during rainfall unless the operation is completely under cover.

The concrete shall be vibrated internally, or externally, or both, as needed to provide adequate flow and consolidation of the concrete. The vibration shall be provided in such a manner as to avoid displacement of reinforcing steel, forms, or other components. There shall be no interruption in the placement of concrete. Concrete shall be placed and vibrated sufficiently to produce a surface free from imperfections such as honeycombing, segregation, cracking, or checking.

Any deficiencies noted in the components may be cause for rejection.

- (d) **Finishing:** All fins, runs, or mortar shall be removed from the concrete surfaces which will remain exposed. Form marks on exposed surfaces shall be smoothed by grinding. All exposed, outside concrete surfaces shall be given a grout clean-down finish in accordance with 6.01.03-10.
- (e) **Handling and Storage:** Any precast concrete components damaged during storage, transportation or handling shall be repaired or replaced by the Contractor, at its own expense, as directed by the Engineer.
- (f) **Repairs:** The Contractor shall submit to the Engineer, for review, any proposed methods or materials to be used in the repair of precast concrete components or defective surfaces. Precast concrete components with defective area greater than 10% as determined by the Engineer will be rejected.

**3. Fabrication Tolerances:** Tolerances of forming precast concrete box sections shall be as follows:

- (a) **Internal Dimensions:** The internal dimensions shall be within 1% of the design dimensions or within 1 1/2 inches, whichever is less.
- (b) **Roof, Floor and Wall Thickness:** The roof, floor and wall thickness shall be within 1/4 inch of the thicknesses shown in the design.
- (c) **Laying Length of Opposite Surfaces:** Variations in laying lengths of two opposite surfaces of the box section shall be less than 1/8 inch/foot of internal span up to 3/4 inch maximum.
- (d) **Length of Section:** The length of a section shall not vary from the designed length by more than 1/2 inch in any box section.

4. **Pre-assembly of Box Sections:** Box sections shall conform to all dimensions within tolerances specified herein. Adjacent sections shall be assembled without a gasket at the manufacturing plant to ensure that all tolerances are met prior to shipping. All sections that will be joined with mechanical connectors shall be pre-assembled, complete with fasteners, to confirm alignment. The Department shall be given at least 2 working days' notice to inspect and evaluate the sections prior to shipping.
5. **Installation:** The installation of the precast concrete box sections and components shall be in accordance with the plans and the following:
  - (a) The installation of the precast concrete box sections shall proceed as required by the sequence of construction, stage construction plans, and the special provisions entitled "Prosecution and Progress" and "Maintenance and Protection of Traffic."
  - (b) Prior to installing the inlet and outlet end box culvert sections, a bed of non-shrink grout shall be placed on the cut-off walls. The end box culvert sections shall be connected to the cut-off wall using galvanized dowels installed in cast or drilled holes and bonded with non-shrink grout.
  - (c) All box culvert lap joints shall be sealed with rubber gaskets and must provide a silt-tight fit. A positive means, through the use of seating devices, shall be used for pulling each section against the adjacent section to assure a silt-tight joint. The gasket shall be uniformly compressed to a minimum of 1/2 of its uncompressed width. The joint opening between adjacent seated sections on all interior surfaces of the culvert shall be uniform and match the width shown on the plans. The interior surfaces on either side of the lap joints of the adjacent seated sections shall form a smooth and continuous plane, free from irregularities.
  - (d) After its installation, any box section, as determined by the Engineer, not acceptable in vertical or horizontal alignment for any reason, including but not limited to settlement, displacement, excess camber or misfit, shall be removed by the Contractor and correctly installed, as directed by the Engineer and at the Contractor's expense.
  - (e) The lap joints on the exterior of the roof and the interior of the floor and the lap joints on the interior and exterior of the walls (full height on each side) shall be filled with non-shrink grout after seating the sections. The exposed portions of the lap joints within the haunches or fillets on the interior of the culvert sections shall also be filled with non-shrink grout. The non-shrink grout shall be finished smooth and flush with the adjacent concrete surface.

All portions of the lifting and seating devices that extend to or beyond the finished concrete surface shall be removed. All fixtures or holes cast into the sections for lifting or seating shall be completely filled with non-shrink grout and finished smooth and flush with the adjacent concrete surface.

The surface preparation, mixing, placing, curing, and finishing of the non-shrink grout shall follow the written instructions provided by the manufacturer of the grout. The Contractor shall furnish the Engineer with copies of the instructions.

Prior to the passage of flowing water over the with non-shrink grout, the non-shrink grout shall attain a minimum compressive strength of 3,000 psi.

- (f) Geotextile shall be placed on the exterior surface of the roof and walls of the culvert over the lap joints between the culvert sections. The geotextile shall extend 12 inches to each side of the joint and shall be attached to the culvert with silicone caulk.

- 6. **Erection Tolerances:** The Contractor shall be responsible for ensuring the overall length of the box culvert meets the layout requirements on the plans within all acceptable tolerances as specified in the contract.

**Method of Measurement:** The work for the precast concrete box culvert will not be measured for payment but will be paid for by the linear foot of precast concrete box culvert as dimensioned on the plans along each box culvert cell, completed and accepted.

**Basis of Payment:** The work for the precast concrete box culvert will be paid for at the Contract unit price per linear foot for "Precast Concrete Box Culvert," completed in place and accepted, which price shall include all equipment, materials, tools and labor incidental to the manufacture, shipping, repair and installation of the precast concrete box culvert of the specified size(s) at the locations shown on the plans.

Pay Item	Pay Unit
Precast Concrete Box Culvert	l.f.

## **ITEM #0601192A – SURFACE PATCH**

**Description:** This work shall consist of sweeping and cleaning areas of deteriorated pavement of all loose and delaminated pavement materials, disposing of deteriorated pavement materials, application of tack coat, and placement of Hot-Mix Asphalt (HMA) or an equivalent Polymer Modified Asphalt (PMA) to match the elevation of the surrounding pavement.

For road sections being milled and paved, all patching operations must be completed after milling is complete and before paving begins. All patching operations shall be completed within one working day following milling and shall be completed before traffic is permitted to resume on the exposed roadway.

**Materials:** Materials for this work shall meet the requirements of Section M.04 and shall consist of the following:

1. HMA S0.25, HMA S0.375, or an equivalent PMA. All HMA or PMA shall be Traffic Level 2 unless indicated otherwise on the plans.
2. Tack coat.

### **Construction Methods:**

Equipment for this work shall include a sweeper capable of remove millings and loose debris, an air compressor capable of producing 100 psi oil free compressed air for cleaning the area to be patched, tools for the placement of bituminous concrete, and pavement compaction equipment to perform patching operations, such as a plate compactor.

1. The Engineer will mark out areas for patching that are broken, damaged, distorted, or delaminated in order to provide a suitable surface for placement of a layer of bituminous concrete. Examples of such areas to be patched include potholes, open longitudinal joints, ruts, and depressions.
2. Sweep and clean the areas to be patched in order to remove all loose and delaminated material to the satisfaction of the Engineer.
3. Clean off any residual dust or small debris using compressed air to the satisfaction of the Engineer, and allow area to fully dry.
4. A uniform application of tack coat meeting the requirements of Section 4.06 shall be applied prior to patching. It shall cover the entire surface area of the patch and be allowed to sufficiently cure or break.
5. Place and compact HMA S0.25, HMA S0.375, or an equivalent PMA by means acceptable to the Engineer and to the elevation meeting the surrounding pavement.

**Method of Measurement:** This work will be measured by the number of square feet of patched roadway completed and accepted.

**Basis of Payment:** This work will be paid for at the Contract unit price per square foot of "Surface Patch." The price shall include all tools, materials, labor, equipment, disposing of deteriorated materials, sweeping and cleaning, tack coat application, and placement and compaction of HMA or PMA.

Pay Item  
Surface Patch

Pay Unit  
s.f.

Item #0601192A

## **ITEM #0601318A - PARTIAL DEPTH PATCH**

**Description:** Work under this item shall consist of the removal of spalled, delaminated or otherwise deteriorated concrete from existing bridge decks, approach slabs and headers by pneumatic hammers or hydro-demolition methods, and replacement with fast setting patching material as shown on the plans, as directed by the Engineer and specified herein.

Where ordered by the Engineer, work under this item shall also include inspecting the underside of the deck concrete for popouts caused by the removal of deteriorated concrete.

Work under this item shall also include the furnishing and installation of wire ties for reinforcing bar and vertical supports on inadequately supported or vibrating reinforcing steel within deck patch areas, as ordered by the Engineer.

**Materials:** The materials shall meet the following requirements:

- 1) **Patching Material:** The patching material shall be a concrete composed of a quick setting cement, fine aggregate, coarse aggregate and water. This concrete shall harden within 40 minutes, and develop minimum compressive strengths of 1,000 psi within 1 hour after set and 3,000 psi within 3 days.

The Contractor shall design and submit a quick setting mix to the Engineer for acceptance. Said mix design shall meet the strength requirements noted above and shall attain a minimum of 2500 psi prior to allowing traffic on patched surfaces. The mix proportions and method of application shall be in accordance with the manufacturer's recommendations. Sources of supply of all the materials shall be clearly indicated.

Fine aggregate shall meet the requirements of Subarticle M.03.01-2.

The coarse aggregate shall meet the requirements of Subarticle M.03.01-1. The required grading shall be obtained by using 100% of No. 8 size coarse aggregate. Grading of the aggregate shall conform to the gradation for No. 8 stone in Article M.01.01.

Water shall meet the requirements of Subarticle M.03.01-4.

The quick setting cement shall be one of the following materials:

**MasterEmaco T 415**

BASF

23700 Chagrin Blvd.

Beachwood, OH 44122

216-839-7016

[www.master-builders-solutions.basf.us](http://www.master-builders-solutions.basf.us)

**Perma Patch**

Dayton Superior Corporation

7130 Ambassador Dr.

Allentown, PA 18106

800-745-3707

[www.daytonsuperior.com](http://www.daytonsuperior.com)

**Rapid Set DOT Cement**

CTS Cement Manufacturing Corporation

12442 Knott Street

Garden Grove, CA 92841

800-929-3030 ext. 188

[www.ctscement.com](http://www.ctscement.com)

**Speed Crete Green Line**

Tamms Industries

730 Casey Ave.

Wilkes-Barre, PA 18702

800-218-2667

[www.dpproducts.com/products/tamms.html](http://www.dpproducts.com/products/tamms.html)

Fastcrete  
Silpro Corporation  
2 New England Way  
Ayer, MA 01432  
800-343-1501  
[www.silpro.com/products/fastcrete.shtml](http://www.silpro.com/products/fastcrete.shtml)

Gypsum Based Materials will not be allowed.

**Construction Methods:**

Removal of concrete for partial depth patch will be performed by one of two methods: Hammer Demolition or Hydro-demolition. Prior to beginning any work, the Contractor shall provide submittals outlining intended method, as defined herein.

- 1) Inspection of the Deck: Before any existing concrete is removed, the Contractor shall provide the Engineer clear access to the bridge deck. During this time, the Engineer will perform an inspection of the structural slab and will designate areas where concrete removal shall be required. It shall be the responsibility of the Contractor to arrange the construction schedule so that the required operations may be performed without causing delay to the work.

No operations will be performed by the Engineer until after the following construction work has been completed:

- a) The existing bituminous overlay or concrete wearing course, if present, has been removed.
- b) The existing waterproofing system, if present, has been removed.

Note: The removal of this material will be paid for under other applicable items.

It shall be the responsibility of the Contractor to inform the Engineer, in writing, of the date that a structure will be available for inspection operations. Notification shall be given to the Engineer at least 7 days prior to the date that the area in question will be in a condition acceptable to the Engineer.

The Contractor is hereby informed that the following time period will be necessary to perform the required inspection operations:

One working day with suitable weather conditions per each six thousand (6,000) square feet, or portion thereof, of deck area.

The Contractor will not be allowed to do any further work to the structure, until all necessary inspection operations have been performed, unless given permission by the Engineer.

The Contractor shall include any costs related to the allowance for this inspection in the general cost of the work.

- 2) Hammer Demolition: The maximum allowable noise level caused by equipment used for the removal of deck concrete shall not exceed 90 decibels on the "A" weighted scale, as measured at the nearest residence or occupied building. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the equipment will meet this requirement before the use of such equipment will be allowed.

The weight of pneumatic hammers when used shall not exceed 30 pounds for concrete removal above the top reinforcing steel nor 15 pounds for concrete removal below the top reinforcing steel.

- 3) Hydro-Demolition Water and Equipment: All hydro-demolition equipment shall be capable of selectively removing spalled, delaminated or otherwise deteriorated concrete and cleaning the existing reinforcing steel of all rust and corrosion products by use of high-velocity water jets acting under continuous automatic control.

The hydro-demolition equipment shall consist of filtering and pumping units operating in conjunction with a remote-controlled robotics device.

All hydro-demolition equipment shall be equipped with an angled and rotating water nozzle to prevent interference of the existing reinforcing steel with the removal of concrete.

The maximum allowable noise level caused by equipment used for the removal of deck concrete shall not exceed ninety (90) decibels on the "A" weighted scale, as measured at the nearest residence or occupied building. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the equipment will meet this requirement before the use of such equipment will be allowed.

The make and model numbers of hydro-demolition equipment shall be submitted for acceptance by the Engineer. No hydro-demolition work shall be initiated until this acceptance is granted.

The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent traffic lanes in the vicinity of the removal and cleanup operations.

Water used for the hydro-demolition shall be potable.

The Contractor is advised that the withdrawal of more than 50,000 gallons of water per day from a single source other than from a municipal water system shall require a diversion permit issued by the Department of Energy and Environmental Protection, Water Resources Unit, in accordance with the Connecticut Water Diversion Policy Act PA 84-402, CGS Sections 22a-365 through 22a-378.

- 4) Hydro-Demolition Drainage Runoff Control: At least 2 weeks prior to the planned initiation of hydro-demolition operations, the Contractor shall submit to the Engineer for acceptance a comprehensive plan for the hydro-demolition operation. This Hydro-Demolition Plan shall include the following:

- a) Equipment
- b) Containment
- c) Filtration
- d) Location of trial areas
- e) Disposal of hydro-demolition runoff and concrete debris in conformance with these specifications

The Plan shall ensure that all concrete debris and particulate matter will be removed from hydro-demolition runoff water prior to its release to the environment.

The Plan shall include provision for the concurrent vacuuming of all runoff water at the immediate vicinity of the hydro-demolition operation. Runoff water shall be completely contained and vacuumed into a suitably sized water tight mobile tank for transport to a disposal site sedimentation basin acceptable to the Engineer.

Hydro-demolition operations shall proceed only with the simultaneous operation of a runoff water vacuum pickup in the immediate area of the hydro-demolition operation. Runoff water shall not be allowed to flow across adjacent travel lanes, across bridge joints nor through any existing bridge drainage system.



The size and location of the disposal site sedimentation basin shall be detailed in the Hydro-Demolition Plan. The sedimentation basin shall be properly sized so that uncontrolled overflow does not occur. At the conclusion of hydro-demolition operations, the sedimentation basin and all concrete debris shall be removed and the area restored to its original condition.

The Plan shall additionally conform to all applicable requirements of Section 1.10 Environmental Compliance of the Standard Specifications.

The acceptance by the Engineer of the Hydro-Demolition Plan shall in no way relieve the Contractor of any responsibility for its safe and effective performance.

- 5) Calibration and Testing of Hydro-Demolition Equipment: A trial area will be designated by the Engineer to demonstrate that the equipment, personnel and methods of operation are capable of producing satisfactory results. The trial area will consist of 2 patches, each of approximately 20 square feet, one area of deteriorated or defective concrete and one area of "sound" concrete as determined by the Engineer.

Area of sound concrete is defined as: An area free from chemical defects, delamination, spalling, cracks, etc.

In the "sound area of concrete," the equipment shall be programmed to remove concrete to a depth 1 inch  $\pm$  1/4 inch below the top reinforcing steel mat.

After completion of the sound concrete test area, the equipment shall be located over the deteriorated or defective concrete and, using the same parameters as for sound concrete removal, shall remove all deteriorated or defective concrete. If a satisfactory result is obtained, these parameters may be used as a basis for production removal.

If, after calibrating the hydro-demolition equipment and beginning removal operations in a particular zone or area, insufficient removal of concrete is observed, in the opinion of the Engineer, the Contractor shall recalibrate the hydro-demolition equipment for that zone or area to the satisfaction of the Engineer.

- 6) Removal of Deteriorated Concrete: All deteriorated concrete designated for removal under this construction item shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area to be repaired will be delineated by the Engineer and suitably marked. Where several areas to be repaired are very close together, the Engineer may combine these individual patches into a large area. The outlines of each such area shall first be cut to a depth of 1/2 inch with a powersaw capable of making straight cuts prior to pneumatic demolition. In the event that reinforcing steel is encountered within the upper 1/2 inch depth during sawing operations, the depth of saw-cut shall immediately be adjusted to a shallower depth so as not to damage the steel bars. If so directed by the Engineer, saw cutting shall again be carried down to the 1/2 inch depth at other locations of repair provided reinforcing steel is not again encountered. Where over-breakage occurs resulting in a featheredge, the featheredge shall be squared up to a vertical edge in an acceptable manner. Where sawing is impractical, the area shall be outlined by chisel or other acceptable means.

All deteriorated concrete shall be removed by pneumatic hammers or hydro-demolition methods.

The depth of concrete removal shall be at least 1 inch below the top reinforcing steel mat but shall be such as to include all spalled, delaminated, or otherwise deteriorated concrete.

The Engineer will be the sole determiner of what constitutes deteriorated concrete, using sounding methods or other evaluation measures.

Within 1 hour following the initiation of a concrete removal operation in any patch area, all loose concrete debris shall be removed, followed by water flushing of the existing concrete bonding surface to completely remove all traces of concrete debris and cement residue so that rebonding to the surface of the remaining sound concrete will be prevented. If it is not convenient to clean and flush the patch area within this time frame, all steel reinforcing and concrete bonding surfaces shall be cleaned subsequently by high pressure water blasting at a nozzle pressure not less than 3,000 psi with a sufficient volume to completely remove all rebonded debris and laitance.

Where the existing reinforcing steel is damaged or corroded, it shall be cut out and replaced with new reinforcing steel of the same size. Any sound reinforcing steel damaged during the concrete removal operations, shall be repaired or replaced by the Contractor at its expense, as directed by the Engineer. New steel shall be attached beneath or beside existing steel with a minimum splice length as indicated on the plans, or as directed by the Engineer. The concrete shall be removed to a minimum depth of 1 inch below the new steel.

- 7) Surface Preparation: Sound reinforcing steel which is in the proper position in the slab shall be left in place and cleaned of all concrete, the smaller fragments to be removed with hand tools in patch areas where pneumatic hammers were used.

Reinforcing bar wire ties and vertical supports shall be installed on inadequately supported or vibrating reinforcing steel, as directed by the Engineer.

The concrete surface and reinforcing steel to receive patching material shall be either sandblasted or water blasted, followed by air blasting in order to remove all loose particles and dust. All blasting operations shall be performed using techniques acceptable to the Engineer, taking care to protect all pedestrians, traffic, and adjacent property. All compressed air sources shall have properly sized and designed oil separators attached and functional to allow delivered air at the nozzle to be oil-free. The patch area shall be cleaned of all additional loose or powder-like rust, oil, solvent, grease, dirt, dust, bitumen, loose particles, and foreign matter just prior to patching.

If the patch area was not cleaned and flushed with clean water immediately following hydro-demolition, or if run-off from a nearby hydro-demolition operation was allowed to travel through the previously cleaned and flushed patch surface, all affected concrete and steel reinforcing bonding surfaces shall be water blast cleaned at a nozzle pressure not less than 3,000 psi as directed by the Engineer, to assure that all remaining bond inhibiting laitance is completely removed.

The entire concrete surface to be patched shall be dampened. All excess free water shall be removed from the patch area.

- 8) Mixing, Placing, and Finishing: Unless a winter operations plan has been submitted to the Engineer by the Contractor, mixing and placing concrete shall only take place when the ambient temperature is above 35°F or per manufacturer's recommendations, whichever is higher. All mixing shall be accomplished by means of a standard drum-type portable mixer. A continuous type mobile mixer may be used if permitted by the Engineer. The Contractor shall calibrate the mobile mixer under supervision of the Engineer. Calibration shall be in accordance with the applicable sections of ASTM method C685. The total mix shall be limited to the quantity that can be mixed and placed in 15 minutes. The concrete mix shall

be spread evenly and compacted to a level slightly above the pavement surface. Vibration, spading or rodding shall be used to thoroughly compact concrete and fill the entire patch area. Where practical, internal vibration shall be used in cases where concrete has been removed below the reinforcing steel. Hand tamping shall be used to consolidate concrete in smaller patches, including popouts.

Vibrating plates or vibrating screeds shall be used on the surface of all patches for strike off and consolidation. After the concrete has been spread evenly and compacted to a level slightly above the pavement surface, the vibrating plate or screed shall be drawn over the surface at a uniform speed without stopping, in order to finish the surface smooth and even with adjacent concrete.

The surface shall be float finished.

Finishing operations shall be completed before initial set takes place.

Cured patches, having a hollow sound when chain dragged or tapped, (indicating delamination), shall be replaced by the Contractor at its expense until a patch acceptable to the Engineer is in place.

- 9) Tolerances in Finished Patched Surfaces: The surface profile of the patched area shall not vary more than 1/8 inch in a distance of 10 feet, when a 10 foot long straightedge is placed on the surface at any angle relative to the centerline of the bridge. Humps in the patch that exceed the 1/8 inch tolerance shall be ground down by acceptable machinery. Sags or depressions in the surface of the patch area that exceed the 1/8 inch tolerance shall be repaired by removal of the concrete in the depression over an area determined by the Engineer to a depth of 1 inch and repaired in the previously described manner.
- 10) Underside of Bridge Deck Treatment: The Engineer will examine the underside of the bridge deck for popouts caused by the removal of deteriorated concrete. The exposed reinforcing steel shall be coated with epoxy resin where ordered by the Engineer. The exposed reinforcing steel, if any, which is to receive the epoxy resin coating material shall be cleaned of all loose or powder-like rust, oil, dust, dirt, loose particles, and other inhibiting matter just prior to coating.

The epoxy resin shall be mixed in accordance with the manufacturer's instructions. Also in accordance with the manufacturer's instructions, 2 coats of the mixed material shall be applied in uniform coats of approximately 2 to 3 mils dry film thickness each.

If the popouts extend beyond the bottom layer of reinforcing steel, the popouts shall be repaired as ordered by the Engineer.

- 11) Test Cylinders: The Contractor shall make and perform compressive strength tests on representative cylinders under the supervision of the Engineer in accordance with ACI requirements. The dimensions, type of cylinder mold and number of cylinders will be specified by the Engineer. Traffic shall not be permitted on patched surfaces until the patch material attains a strength of 2500 psi, as determined by breaks of the test cylinders.

A portable compression testing machine shall be provided by the Contractor and available on site for cylinder testing. All testing and equipment shall conform to ASTM C39.

Note: The compression machine must be calibrated in accordance with the provisions of Section 5, ASTM C39.

- 12) Time Schedule: Work under this item begun on any specific bridge during a construction season shall be completed, at least, to include this item, membrane waterproofing and placing

of first course of wearing surface as soon as possible and specifically before the beginning of the construction season's winter shutdown.

All work shall proceed as required by the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications elsewhere within the Contract.

**Method of Measurement:** This work will be measured for payment by the actual volume in cubic feet of patching material used in acceptable concrete deck patches, except where the Engineer determines that the Contractor has unnecessarily removed sound concrete. Where sound concrete has been unnecessarily removed, the replacement concrete will not be measured for payment. Providing safe access for delineation and inspection of the performed repairs will not be measured for payment.

Replacement of deteriorated epoxy rebar and repair of epoxy coated rebar at popouts, if required, will be measured for payment under other Contract items.

**Basis of Payment:** This work will be paid for at the Contract unit price per cubic foot of deck concrete repaired under "Partial Depth Patch," complete and accepted in place, which price shall include removal of deteriorated concrete, surface preparation of patch areas, concrete replacement, the furnishing and installation of reinforcing bar wire ties and vertical supports for inadequately supported existing reinforcing steel, inspection access, all materials, equipment, including the portable compression testing machine required for the testing of the repair material, tools, labor and work incidental thereto.

Replacement of deteriorated epoxy rebar, if required, will be paid for under the item "Deformed Steel Bars – Epoxy Coated."

Epoxy resin coating of exposed epoxy rebar at the underside of the deck, if required, will be paid for under the item "Clean and Coat Exposed Reinforcing Steel."

Pay Item	Pay Unit
Partial Depth Patch	c.f.

## **ITEM #0601426A – CLASS “S” CONCRETE FOR HISTORIC BRIDGES**

Work under this item shall conform to the requirements of Section 6.01 supplemented and amended as follows:

**Article 6.01.01-Description:** Add the following:

Work under this item includes removing unsound, deteriorated concrete as delineated by the Engineer, and placing a historically replicated concrete repair material to restore the deteriorated concrete to a sound and historically accurate condition.

**Article 6.01.02-Materials:**

1. **Concrete:** Materials shall conform to Section M.03 as modified herein below.

**Subarticle M.03.01 – Component Materials:** Add the following:

A mix design for “Class ‘S’ Concrete for Historic Bridges” shall be prepared and submitted by the Contractor to the Engineer for the Conservator’s approval. Approval of the submitted mix design is contingent upon verification by the Conservator by visual inspection that the fine and coarse aggregates of the proposed mix design match the aggregates of the historic concrete used at the bridge as determined under the item, “Testing and Analysis of Historic Concrete”. This visual inspection shall be allowed to occur at the concrete batch plant, the aggregate source, through the furnishing by the Contractor to the Conservator of aggregate samples from the aggregate source, or any combination thereof as may be requested by the Engineer or Conservator.

The mix design shall attain a 28 day compressive strength ( $f'_c$ ) of 4,400psi. The mix design shall replicate the color, fine and coarse aggregates of the original bridge as determined through the analysis and testing of concrete samples completed through the special provision item “Testing and Analysis of Historic Concrete” with the exception that coarse aggregate is to be limited in size to  $\frac{3}{4}$ ” (No.6) and an appropriate amount of superplasticizing admixture is added.

**Subarticle M.03.01-1 – Coarse Aggregate:** Add the following:

The proportions of the various sizes of coarse aggregate and the type of aggregate shall be as determined in the Testing Laboratory Report (see the special provision “Testing and Analysis of Historic Concrete”) except that maximum size shall be limited to  $\frac{3}{4}$ ” (No.6) in size. The maximum aggregate size is to facilitate placement of concrete around reinforcing bars in patches that have been excavated to the minimum clearance of 1” behind the bars.

**Subarticle M.03.01-2 – Fine Aggregate:** Add the following:

The proportions of the various sizes of fine aggregate and the type of aggregate shall be as determined in the Testing Laboratory Report (see the special provision “Testing and Analysis of Historic Concrete”)

**Subarticle M.03.01-3 – Cement:** Add the following:

Cement shall be as determined through in the Testing Laboratory Report (see the special provision “Testing and Analysis of Historic Concrete”). Gray and white cements may be blended to achieve the matching historic coloration, as approved by the Engineer. Type II Portland Cement generally yields mixtures lighter in color than Type I.

**Subarticle M.03.01-5 – Admixtures:** Add the following:

Superplasticizing Admixtures: The superplasticizer admixture shall be a high-range water reducer (HRWR) capable of increasing the slump of the mix from approximately 2.5” to 7” upon the addition of the amount recommended by the respective manufacturer. The HRWR shall conform to ASTM C494 Type F or Type G and shall be approved by the Engineer. The use of this material shall be in strict accordance with the respective manufacture’s written instructions and procedures.

Air-Entrainment – Air entrainment shall range between 4.5 and 7.5 percent. Air-entraining admixtures may affect the color of the repair concrete and shall be considered in the development of color-matched concrete mix designs and the possible addition of pigments.

Colorants/Pigments: The use of color pigments shall be approved by the Engineer. Dry pigments are to be synthetic mineral oxides conforming to ASTM C979, “Standard Specification for Pigments for Integrally Colored Concrete” but shall only be used if concrete is mixed in a central batch plant.

**Article 6.01.03 – Construction Methods:** Add the following:

The concrete shall have a slump range 2-4 inches prior to the addition of the HRWR and from 6-8 inches slump after the addition of the HRWR. The addition rates of the air-entraining admixture (A.E.A.) and the HRWR will vary. Frequent field testing of the air content and slump prior to and after addition of the HRWR will be the determining factor of actual addition rates for each admixture.

**Subarticle 6.01.03-7 – Mixing Concrete:** Add the following:

For hand mixing of the concrete, the Contractor shall provide scale(s) approved by the Engineer in which cement and aggregate can be accurately weighed for the required mix proportions.

The Contractor shall also have measuring graduates marked in ounces for the proportioning of the A.E.A. and the HRWR. Do Not mix the A.E.A. and the HRWR together before adding to the mix; the resultant solution will not work. DO NOT add the A.E.A. and the HRWR at the mixer simultaneously; these admixtures must be added separately in the mixing cycle. All manufactured materials shall be stored, mixed and used in strict accordance with the written recommendations of the respective manufactures.

**Subarticle 6.01.03-II-10 – Finishing Concrete Surfaces:** Delete the entire sub-article and add the following:

The external surface of all concrete shall be thoroughly worked during the operation of placing by means of tools of an approved type. The working shall be such as to force all coarse aggregate from the surface and thoroughly work the mortar against the forms to produce a smooth finish free from water and air pockets, segregated materials, or honeycomb. All horizontal surfaces shall be formed by placing an excess of material in the forms and removing or striking off such excess by means of a tool of an approved type, forcing the coarse aggregate below the mortar surface.

Immediately after the forms have been removed, all voids and honeycombs on the surface shall be filled and finished to conform to the surrounding concrete surface with a mortar of fine aggregate and Portland Cement of the same materials and coloration as that of the particular concrete being treated. This work shall be performed immediately after removal of forms and before the finishing process is started.

Following the filling of voids and honeycombs, concrete surface shall be given one of the following concrete finishes, similar to adjacent existing concrete surface, as indicated on the plans, or as directed by the Engineer. Generally but not in all cases, a Rubbed surface finish as described herein will be constructed on vertical exposed surfaces, and a Brush finish will be constructed on horizontal surfaces (eg., parapet tops, railing caps, bridge seats) as described herein.

**Rubbed Finish:**

As soon as the filling of voids and honeycombs has set sufficiently to permit it, the entire surface shall be thoroughly wet with a brush and rubbed with a No. 16 carborundum stone or an abrasive of quality, bringing the surface to a paste. The rubbing shall be continued sufficiently to remove all form marks and projections, producing a smooth dense surface without pits or irregularities.

The paste formed by the rubbing may be finished by carefully striping with a clean brush, or it may be spread uniformly over the surface and allowed to reset. Following the reset of the paste, the surface shall be finished by floating with a canvas, carpet-faced or cork float or rubbed down with dry burlap.

**Brush Finish:**

After the concrete has been struck off as described above, the surface shall be thoroughly worked and floated with a wooden, canvas, or cork float, the operation to be performed by skilled and experienced concrete finishers. Before this finish has set, the surface shall be lightly striped with a fine brush to remove the surface cement film, leaving a fine grained smooth, but sanded texture.

**Float Finish:**

After the concrete has been struck off as described above, the surfaces shall be thoroughly worked and finished with a rough carpet float or other suitable device, leaving the surface even, but distinctly sandy pebbled in texture.

**Ground or Terrazzo Finish:**

The upper surfaces of rail caps, parapets or other surfaces when indicated on the plans shall be finished by grinding with a carborundum stone, or equally good abrasive to a smooth dense, terrazzo finish.

Using a No. 16 carborundum stone or an abrasive of equal quality, the surface shall be ground dry or wet until it is smooth and individual pebbles and aggregate particle are cut and polished. The surface shall then be completely cleansed with water, the final rubbing done by means of a No. 30 stone. The finished surface shall present the texture of polished marble and shall show the various aggregate particles in polished outline.

**Tooled Finish:**

This finish, typically for panels and other like work, shall be produced by the use of pneumatic tools, bush-hammer, pick, Crandall or other approved tool. No tooling shall be done until the concrete has cured for at least fourteen (14) days but as long as needed to prevent the aggregate particles from being “picked” out of the surface. The finished surface shall show a grouping of broken aggregate particles in a matrix of mortar, each aggregate particle being in slight relief.

**Sand Blast Finish:**

This finish typically for panels and other like work, shall be produced by sand blast methods. No sand blasting shall be done until the concrete has cured for at least fourteen (14) days. The sand blasting must be done by means of approved equipment and in such a manner as to produce an even grained surface in which the mortar has been cut away, leaving the aggregate particles exposed.

**Wire Brush or Scrubbed Finish:**



This type of finish shall be produced by scrubbing the surface of “green” concrete with stiff wire or fiber brushes, using a solution of muriatic acid in the proportion of one (1) part acid to four (4) parts water. As soon as the forms are removed, the concrete surface shall be thoroughly and evenly scrubbed as described above until the cement film or surface is completely removed and the aggregate particles are exposed, leaving an even pebbled texture, presenting an appearance grading from that of fine granite to coarse aggregate, depending on the size and grading of aggregate used.

As soon as the scrubbing has progressed sufficiently to produce the required texture, the entire surface shall be washed thoroughly with water, to which a small amount of ammonia has been added, to remove to neutralize the affects of the acid.

### **Material Storage:**

The Contractor shall store and maintain the A.E.A. and the HRWR materials in clean original containers as delivered by the manufacture.

### **Repair Procedure:**

Prior to the Contractor removing any concrete, the Engineer will perform an inspection to determine the exact limits and locations of all areas to be repaired. The Contractor shall provide scaffolding as required for the Engineer’s access for inspection. The Contractor shall not perform any repair work without prior approval of the Engineer for locations, limits and types of repairs.

After deteriorated concrete has been removed from the designated areas, the Contractor shall perform repairs in accordance with Class “S” Concrete Repair details on the Typical Concrete Repair Details drawing.

No bridge shall receive an application of the specified material(s), including any necessary surface preparation materials, prior to the following criteria being met:

- 1) The bridge has been cleaned in accordance with the item, “Clean Historic Concrete Bridge (Site No. X)” and the cleaning has been approved by the Engineer.
- 2) Test Reports have been developed in accordance with the item, “Testing and Analysis of Historic Concrete” and have been approved by the Engineer.
- 3) The specified material mock-up, as described elsewhere within this specification, has been approved by the Engineer as a match to the existing historic concrete in color, texture, aggregate type and distribution, and finishing technique.
- 4) Graffiti removal has been performed in accordance with the item, “Removal of Graffiti from Historic Concrete” at locations approved by the Engineer.

Extreme care shall be taken where reinforcing steel is uncovered not to damage the steel or its bond in the surrounding concrete. Pneumatic tools shall not be placed in directed contact with reinforcing steel. Maximum 7 kg size hammers shall be used for general chipping and removal. Exposed reinforcing shall remain in place except where specifically indicated for removal by direction of the Engineer. If the existing reinforcing steel is severely corroded or damaged, the Engineer shall be notified immediately. Exposed patch areas, surfaces of reinforcing steel, application of product, and surface finishing techniques shall be prepared in accordance with this special provision.

No patch shall be placed until the Engineer has approved the repair type.

Adequate measures shall be taken by the Contractor to prevent concrete chips, tools and materials from entering into adjacent roadway lanes or dropping to areas below the structure. When using sandblasting equipment, all work shall be shielded for the protection of the public. All debris shall be promptly swept up, removed, and satisfactorily disposed of by the Contractor from the site.

The perimeter of each deteriorated area shall be delineated with a 1" deep saw cut or chiseled edge. When sawcutting the concrete, care shall be taken not to cut existing reinforcing. Loose, deteriorated and hollow sounding concrete shall be removed to sound concrete. The exposed surfaces shall be thoroughly sandblasted and vacuumed immediately prior to forming. Hollow areas in the existing concrete shall be completely exposed by chipping away back to sound concrete and thoroughly sandblasted and vacuumed immediately prior to forming. Exposed reinforcing steel shall be sandblasted in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale.

Removal of unsound concrete material shall be such to facilitate uniform placement of fresh concrete; all areas of excavated voids shall slope evenly out to within 1" of the face of the concrete to preclude entrapping air and forming hollow spots in the freshly placed concrete. Within 1" of the surface, the outline shall be perpendicular to the surface.

Where the existing reinforcing steel is severely corroded or damaged, it shall be cut out and replaced with new reinforcing steel of the same size with a minimum length for lap splices as required under the tension lap splice requirements set forth under the AASHTO LRFD Bridge Design Specifications 8<sup>th</sup> Edition – 2017. If larger size bars are encountered, the Contractor shall notify the Engineer. When existing steel is determined by the Engineer to have insufficient cover, it shall be either replaced or adjusted as directed.

All compressed air equipment used in cleaning shall have properly sized and designed oil separators, attached and functional, to assure the delivery of oil free air to the nozzle. The surfaces to be patched, including exposed reinforcing, shall be free of oil, solvent, grease, dirt, dust, bitumin, rust, loose particles and foreign matter.

The color of the patch shall be matched to the clean, historic concrete of the properly cleaned bridge. Proper cleaning shall be in accordance with the special provision, "Clean Historic Concrete Bridge (Site No. X)".

The Engineer will determine if the patch will also require a textured finish. The Contactor will design a patch that will replicate the color and texture of the clean surface of the existing concrete.

### **Mock-Ups**

The Contractor shall prepare a minimum 4' x 4' mock-up panel to demonstrate that the repair patch will match existing adjacent historic concrete in color, texture, and general appearance. The mock-up will be viewed from a distance of 10 feet for color and texture evaluation against the clean concrete it is intended to match. Should the Engineer determine that the mock-up does not match the existing concrete, additional mock-ups will be required. The Contractor shall adjust the color and/or texture of the patch mix design and assist in the preparation of all mock-ups until the Engineer determines that a match has been attained.

The Engineer will determine if the patch shall incorporate techniques to simulate exposed aggregate, where applicable. The Contractor shall submit for approval his recommendations for simulating the exposed aggregate finish. The submission shall include:

- aggregate size, type, and distribution, using, as a guide, the final "Testing Laboratory Report" for each bridge as prepared under the item, "Testing and Analysis of Historic Concrete".
- technique for exposing the aggregate in the finished patch

The mock-up shall incorporate the recommendations of the approved submission for simulating the exposed aggregate finish.

All excavated areas on vertical surfaces of concrete members shall be formed using forms coated with a plastic or similar film to preclude the use of form release agents. Forms and support systems shall be properly designed in accordance with 6.01.03-II-1. Forms shall be so designed that placement access shall be allowed at the top of each respective formwork assembly for contiguous void areas.

No bonding compounds shall be used before or during the placement of this concrete material. Concrete surfaces against which this material is to be placed shall be sound, tight, and thoroughly roughened by the removal and sandblasting procedures specified above. The exposed concrete surfaces shall be kept moist for at least twenty-four (24) hours prior to the placement of the concrete repair material.

Prior to forming vertical surfaces, 4x4 - 6 gauge reinforcing steel wire fabric conforming to the requirements of M.06.01-3 shall be installed at the proper depth to those areas greater than four (4) square feet and 3" deep or as approved by the Engineer. The fabric shall be tied to any exposed reinforcing steel or anchored to sound concrete with 1/4" powder actuated anchors such as the Hilti "Gunite Slip" or W-6 Threaded Stud and Eye-Coupling or equivalent and as approved by the Engineer.

Placement of the fresh concrete shall be in the maximum height lifts possible under the circumstances and all freshly placed concrete shall be consolidated during placement with adequately sized and effective vibrators.

Following curing and stripping of forms, the exposed faces of new concrete patches shall be finished similarly to adjacent existing concrete surfaces, with a specific surface finish as indicated on the plans, or as directed by the Engineer, in accordance with the aforementioned requirements of this special provision.

Cured patches shall be sounded by the Engineer to detect the presence of any hollow spots. Such spots shall be removed and replaced by the Contractor at no additional cost to the State.

**Method of Measurement:** This work will be measured for payment by the number of cubic feet used in the acceptable patches. Where sound concrete has been unnecessarily removed, the excess material for the replacement patch will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract unit price per cubic foot for "Class 'S' Concrete for Historic Bridges ", complete in place. The price shall include sawcutting, the removal of deteriorated concrete, cleaning and surface preparation of the patch areas, cementitious primer, and mock-ups. It shall also include scaffolding for access and Engineer inspection, debris shields, furnishing, placing, finishing, and proper curing of the concrete patch. All equipment, tools, labor and incidentals necessary to complete the work shall also be included in the cost of this item.

Welded wire fabric and anchors will be paid for at the contract unit price for "Deformed Steel Bars."

Pay Item  
Class "S" Concrete for Historic Bridges

Pay Unit  
C.F.

## **ITEM #0601886A - RESTORATION OF ORNAMENTAL HISTORIC CONCRETE**

**Description:** Work under this item shall consist of the Contractor restoring or replacing damaged ornamental historic concrete features with a color-matched repair material to the original non-damaged feature contours, as directed by the Engineer, and in accordance with the plans and specifications.

### **Materials:**

Ornamental Restoration Material: shall be a cementitious compound having high adhesive bond strength, high dimensional stability, a coefficient of thermal expansion and liquid and moisture vapor permeability that are compatible with the substrate, a low modulus of elasticity, natural appearance, and excellent workability. It shall be capable of being color-matched in accordance with this specification. The repair material shall be colorfast.

It shall be one of the following products or an approved equal:

“Jahn M90” by Cathedral Stone

“Custom System 45” by Edison Coatings

Aggregate: shall be selected using, as a guide, the final Testing Laboratory Report for each bridge as prepared under the item, “Testing and Analysis of Historic Concrete”

Chemical Anchoring Material: shall conform to Subarticle M.03.01-15.

Stainless Steel Anchors: Type and size are specified herein and as indicated on the Contract Drawings, if not indicated, as per patching materials manufacturer's recommendation. Anchors and dowels shall be fabricated from ANSI Type 302/304 stainless steel and shall be either headed studs, threaded rods with nuts, or hooked pins to obtain positive anchorage of the repaired feature to the substrate.

### **Construction Methods:**

The Engineer will generally choose to repair historic concrete under “Restoration of Ornamental Historic Concrete” when the items, “Class ‘S’ Concrete for Historic Bridges” and “Class ‘C’ Concrete – Replicated” are not suitable to repair ornamental features. “Not suitable” means that one or more of the following are true:

- the ornamental feature being repaired is too thin to place (minimum thickness is maximum aggregate size plus one-half inch (12.5mm) )
- the ornamental feature being repaired is too small to install anchors for securing the concrete repair material and the additional removal of sound concrete to secure the repair with anchors is not justified
- the formwork is too complex to justify using a poured concrete mix

- in the Engineer's opinion, the cementitious compound as specified above in the "Materials" section of this special provision is more suitable for the repair

The Contractor shall submit working drawings for form work to the engineer for approval before form work is started. The furnishing of such plans, however, shall not serve to relieve the Contractor of any of his responsibilities for the successful completion of the work. Continuous ornament (such as dentil molding, clapboard ornamentation or other) shall be formed with wood forms set with wood dividers. Ornamental work, when so noted on the plans, shall be formed by the use of reverse plaster molds.

No bridge shall receive an application of the specified material(s), including any necessary surface preparation materials, prior to the following criteria being met:

- 1) The bridge has been cleaned in accordance with the item, "Clean Historic Concrete Bridge (Site No.     )" and the cleaning has been approved by the Engineer.
- 2) A full Color-Matched sample set approved by the Engineer is available for matching a repair area
- 3) Test Reports have been developed in accordance with the item, "Testing and Analysis of Historic Concrete" and have been approved by the Engineer. These test reports will provide valuable information to the Conservator regarding the potential need for additional concrete surface preparation, beyond the above noted cleaning, prior to the application of repair materials, coatings, and/or stains.
- 4) The recommendations made by the technical representative of the repair material for surface preparation have been followed.
- 5) The specified material mock-up, as described elsewhere within this specification, has been reviewed by the Conservator or Engineer and approved by the Engineer as a match to the existing historic concrete in color, texture, aggregate type and distribution, finishing technique, and general appearance, and has also been approved for the technical and artistic proficiency of the tradesman in replicating the ornamental feature.
- 6) Graffiti removal has been performed in accordance with the item, "Removal of Graffiti from Historic Concrete" at locations approved by the Engineer.

Extreme care shall be taken in areas of existing ornamentation during the Contractor's operations. Existing ornamentation shall be protected from damage during the performance of the work within this specification and any damage to existing ornamentation as a result of any of the Contractor's work shall be repaired in accordance with this specification at his expense.

The Contractor shall prepare a mock-up which simulates the feature to be repaired. The purpose of the mock-up is to demonstrate that the repair material will match the existing historic concrete in color, texture, and general appearance and will demonstrate the tradesman's skill at replicating

the feature. The mock-up will be viewed from a distance of 10 feet (3 meters) for color and texture evaluation against the clean concrete it is intended to match. Should the Engineer or Conservator determine that the mock-up does not match the existing concrete in both color and texture, additional mock-ups will be required.

The patch shall incorporate techniques to simulate exposed aggregate, where applicable, and shall submit for approval his recommendations for simulating the exposed aggregate finish using "Restoration of Ornamental Historic Concrete". The submission shall include:

- aggregate size, type, and distribution, using, as a guide, the final "Testing Laboratory Report" for each bridge as prepared under the item, "Testing and Analysis of Historic Concrete".
- technique for exposing the aggregate in the finished patch

The mock-up shall incorporate the recommendations of the approved submission for simulating the exposed aggregate finish.

The minimum ambient and patch area surface temperatures shall be 10 °C and rising at the time of mortar application.

Cured repairs may be sounded at the discretion of the Engineer to detect the presence of any hollow spots and appropriate corrections ordered.

**Method of Measurement:** This work will be measured for payment by the number of cubic feet used in the ornamental repairs and accepted by the Engineer.

**Basis of Payment:** This work will be paid for at the contract unit price per cubic foot for "Restoration of Ornamental Historic Concrete", complete in place and accepted. The price shall include removal of deteriorated ornamental concrete, sawcutting, cleaning and surface preparation, cementitious primer, chemical anchoring material and anchors, and mock-ups. It shall also include staging for access, debris shields, product application training and technical representation by the supplier/manufacturer of the repair material, furnishing, placing, finishing, curing the color-matched repair material, and any application of a color-blending sealant. All equipment, tools, labor and incidentals necessary to complete the work shall also be included in the cost of this item.

## **ITEM #0601890A – COLOR-MATCHED STAIN FOR CONCRETE**

**Description:** Work under this item shall consist of furnishing and uniformly applying a color-matched stain to concrete surfaces within the limits indicated on the plans and as directed by the Engineer.

### **Materials:**

Stain: shall be a mineral silicate of one of the following:

“Solalit” by KEIM

“MasonRe” by Cathedral Stone

“Everkote 300” by Edison Coatings

### **Construction Methods:**

“Color-Matched Stain for Concrete” shall be limited in its application on historic concrete bridges. It shall be used only where specified on the plans and as directed by the Engineer.

The color of the stain shall be matched to the clean, historic concrete of the properly cleaned bridge or shall be matched to a color selected by the Engineer. Surface prep shall be in accordance with the special provision, “Clean Historic Concrete Bridge (Site No. X)” or “Recyclable Encapsulated Abrasive Media Cleaning” whichever is appropriate for each site as specified in the plans.

The Contractor shall prepare a “mock-up” panel to demonstrate that the stain will match the existing historic concrete in color. The panel shall be between 5 and 10 square feet in size and shall be constructed with a concrete which has been approved as a match to the concrete to be stained. A minimum of five shades of color shall be presented on the mock-up for the Engineer’s evaluation and selection.

The stain sample on the panel will be viewed from a distance of 10 feet (3 meters) for color evaluation against the clean concrete it is intended to match. Should the Engineer determine that none of the mock-up colors provide a match to the existing concrete, additional mock-ups will be required at no additional cost to the State. The Contractor shall adjust the color and/or texture of the coatings until the Engineer determines that a match has been attained.

All necessary concrete repair or restoration work shall be completed prior to the application of the stain, including the patching of spalls and other unsound concrete by the applicable contract items.

Surface preparation, as may be applicable, and the application of the stain, number of coats, rate of coverage, method of application, application ambient temperature range, and other pertinent criteria shall be in strict accordance with the printed product(s) instructions supplied by the manufacturer and as directed by the Engineer.



No bridge shall receive an application of the specified material(s), including any necessary surface preparation materials, prior to the following criteria being met:

- 1) The bridge has been surface prepped in accordance with the appropriate item, and has been approved by the Engineer.
- 2) The technical representative's recommendations for surface preparation have been followed.
- 3) The specified material mock-up, as described elsewhere within this specification, has been approved by the Engineer as a match to the existing historic concrete in color
- 4) Graffiti removal has been performed in accordance with the item, "Removal of Graffiti from Historic Concrete" at locations approved by the Engineer.

**Method of Measurement:** This work will be measured for payment by the actual number of square feet of "Color-Matched Stain for Concrete" applied by the Contractor and accepted by the Engineer.

**Basis of Payment:** This item will be paid for at the contract unit price per square foot for "Color-Matched Stain for Concrete", complete, which price shall include all applicable surface preparation, mock-ups, technical representation and/or material application training by the manufacturer's technical representative. This item also includes scaffolding for access, protection of traffic during application of the material(s), and all material, equipment, tools, and labor.

Pay Item	Pay Unit
Color-Matched Stain for Concrete	s.f.

## **ITEM #0601895A – REMOVAL OF GRAFFITI FROM HISTORIC CONCRETE**

**Description:** This work shall include the satisfactory removal of graffiti found on concrete bridges by the cleaning and/or removal methods detailed within this specification and as called out within the plans. Removal methods shall be carefully employed so as not to damage or discolor the surface of the concrete and mock-up areas demonstrating the proposed removal methods shall be evaluated and approved by the Engineer prior to continuation of the removal process.

Graffiti is defined as any marking made upon the structure by any type of paints, chalks, crayons, markers, pens, pencils, pastels, polishes, or other similar materials.

**Materials:** The following materials shall be used:

Absorbent Poultices containing powder-inert clays such as kaolin or sepiolite; diatomaceous earth (fuller's earth); or cellulose products such as fluff pulp cellulose or shredded paper mixed with a cleaning solution (see below) to form a paste or slurry.

Cleaning Solutions shall consist of a liquid reagent such as water, organic solvent, paint stripper, or bleach. **Cleaning solutions shall not be allowed to enter any drainage systems nor shall solutions be allowed to absorb into the ground adjacent to the structure.** The following cleaning products, or an approved equal, or acceptable for use:

**Sure Klean ® Fast Acting Stripper (by Prosoco, Inc.)** solvent based stripping compound may be utilized on the historic concrete for removal of graffiti.

**Watch Dog WipeOut ( by Dumond Chemicals)**

**Delivery, Storage and Handling:** All materials shall be delivered to the site in the Manufacturer's original and unopened containers and packaging, bearing labels as to the type of material, brand name and Manufacturer's name. Delivered materials should be identical to tested materials.

Material shall be stored off the ground in a clean, dry location. All materials that are damaged or are otherwise unsuitable for use shall be removed from the site.

All materials shall be handled, stored and treated in strict accordance with manufacturer's instructions, with regard to application and shelf life, spillage, clean-up, safety precautions, and protective means and methods.

**Construction Methods:** Graffiti removal shall not begin until the bridge has been cleaned per the specification "Clean Historic Concrete Bridge (Site No. X)". Graffiti removal shall always begin with the gentlest means possible. Prior to beginning the removal process, the boundary limits for each area of graffiti as described within the Method of Measurement will be determined by the Engineer. Limits shall be outlined using non-staining, removable chalk. The Graffiti Removal Procedure Plan, as detailed below, shall be submitted to the Engineer for approval.

1. **Graffiti Removal Program:** Prior to commencing graffiti removal operations, the Contractor shall submit a written **Graffiti Removal Procedure Plan** which includes the following:

- all materials, methods, and equipment proposed for each phase of graffiti removal
- all graffiti removal products and chemical components to be used, the method(s) of application, dilution of the application, temperature of application, length of time of surface contact, method of rinsing (*temperature, pressure, and duration*), and repetition of procedures, methodology for the full collection of all waste water, and the proper disposal of all materials. The ambient temperature range shall also be noted for proper application of cleaning products in accordance with the manufacturer's recommendations and specifications.
- a written description of proposed materials and methods of protection for preventing damage to adjacent materials, soil, water bodies, wetlands, wells, vegetation, vehicular / pedestrian traffic, and adjacent property.

**Demonstration Test Area:** Prior to commencing the graffiti removal operations, the Contractor shall demonstrate a trial application of the proposed cleaning method on a discrete portion of the wingwall or abutment face, where possible. The location of the graffiti removal demonstration test shall be determined by the Engineer. The demonstration test area shall be cleaned using methods, materials and working pressures previously submitted and approved. The demonstration test shall be performed in the presence of the Engineer.

Where chemical poultices are tested, perform testing in the presence of the Manufacturer's representative.

The production work of graffiti removal at bridge concrete surfaces shall not begin without approval from the Engineer of the graffiti removal methods, working pressures, materials, equipment used. The evaluation by the Engineer of the acceptability of the Contractor's proposed graffiti removal method will include a seven (7) day observation period after completion of the trial cleaning demonstration for verification that the requested graffiti removal method has caused no surface damage to historic concrete surfaces.

**Preparation:**

- a. Demonstration Test Area: Prepare test area as specified above.
- b. Graffiti Removal Program: The Graffiti Removal program shall be submitted as specified above.
- c. Protection: All painted and unpainted metal structure, railings and decorative elements shall be protected from contact with chemical cleaners by covering with polyethylene film, waterproof masking or other proven measures, firmly fixed and sealed to the surface.

The Contractor shall comply with the graffiti removal product manufacturer’s recommendations for protecting adjacent surfaces from exposure to their products.

Over-spray and splashing of the cleaning materials shall be prevented.

All persons, soil, surrounding vegetation and adjacent property shall be protected from injury, damage and contamination at all times during the graffiti removal process.

If the approved methods for graffiti removal are determined by the Engineer to be ineffectual after reasonable efforts to perform the removal have been demonstrated by the Contractor, then graffiti will be addressed as follows:

- Graffiti removed to a high degree, but faint markings remain: the Engineer may, at his discretion, instruct the Contractor to apply a color-blending sealant to the surface for the purpose of blending the surface color with adjacent concrete and/or for simulating a weathered finish. Where existing historic concrete is not uniform in color, a complimentary color, may be necessary to simulate the appearance. The “Specialist” shall recommend an appropriate color or colors to achieve the desired result.
- Graffiti removed to a lesser degree, but visible markings remain: the Engineer may instruct the Contractor to apply “Color-Matched Coating for Concrete” and a color-blending sealant

**Method of Measurement:** This item shall be measured for payment by the number of square feet of graffiti that has been removed and accepted by the Engineer. Areas of graffiti removal for payment purposes shall be defined by the external edges of the graffiti, bounded by a rectangular or square shape. In instances where markings stray outside of the boundaries of a main rectangular or square shape, those markings shall be bounded by additional rectangular or square shapes. No rectangular or square shape dimension bounding the limits of graffiti removal shall be less than one foot.

**Basis of Payment:** The work for this item shall be paid for at the contract price per square foot for “Removal of Graffiti from Historic Concrete” which shall include all work incidental to the removal of any graffiti, including, but not limited to, low pressure power washing, poultice application, gentle brush scrubbing, and other cleaning methods approved for the historic concrete. Also included shall be all work, equipment, or materials necessary to provide staging for access, to provide a debris shield for the protection of traffic, and to protect persons, soil, surrounding vegetation from injury, damage and contamination, including proper containment and disposal of wastewater and cleaning agents.

Pay Item	Pay Unit
Removal of Graffiti From Historic Concrete	s.f.

## **ITEM #0601988A - TESTING AND ANALYSIS OF HISTORIC CONCRETE**

**Description:** This work requires the furnishing, testing and analysis of concrete cores from locations on the structure to be selected by the Conservator. This work includes the furnishing of samples of aggregates obtained from tested cores to the Conservator. This work shall also include the preparation and submittal of a test report that shall include:

- Reverse engineering of the existing sound concrete
- Determination of the historic concrete mix design and a corresponding recommended replication mix
- Evaluation of sound concrete for sources of potential deterioration
- Determination regarding causes and degree of actual concrete deterioration

**Materials:** The cementitious mortar shall be one of the following:

5 Star Structural Concrete V/O

Manufactured by: Five Star Products, Inc..  
750 Commerce Drive  
Fairfield, CT 06825

Re-crete 20 Minute Set

Manufactured by: Dayton Superior Specialty Chemical Corp.  
4226 Kansas Avenue  
Kansas City, KS 66016

MasterEmaco S 488 CI

Manufactured by: BASF Building Systems  
889 Valley Park Drive  
Shakopee, MN 55379

Zinc rich primer shall conform to ASTM A780 and shall be obtained from one of the suppliers on the American Galvanizers Association's most current Product Suppliers List for Zinc-Rich Paints and shall be brush-applied in accordance with the manufacturer's instructions. Spraying shall not be permitted.

Certification: A Materials Certificate shall be required for the cementitious mortar and the zinc primer in accordance with Article 1.06.07, certifying the conformance of these materials to the requirements stated therein.

### **Construction Methods:**

The Contractor shall employ, at his own expense, an independent Concrete Testing Laboratory from the list below, or approved equal, that is experienced in performing the analysis and testing specified herein.

Highbridge Materials Consulting, Inc.  
PMB 183; 1858 Pleasantville Road  
Briarcliff Manor, New York 10510  
(914) 373-9349  
Contact: Mr. John Walsh

Jablonski Building Conservation, Inc.  
40 West 27<sup>th</sup> Street, Suite 1201  
New York, NY 10001  
(212) 532-7775  
Contact: Ms. Mary Jablonski

Wiss, Janney, Elstner Associates, Inc.  
330 Pfingsten Road  
Northbrook, IL 60062  
(847) 272-7400  
Contact: Ms. Laura Powers

#### Concrete Core Samples

The Contractor shall furnish concrete cores which comprise a “Core Group”, as defined below, from areas of sound or deteriorated concrete on the structure. All core locations will be determined by the Conservator to meet the following criteria:

- They shall be located at discrete portions of the structure, as viewable from the Merritt Parkway, which will serve to maintain the overall structure aesthetic.
- They shall be extracted from areas least affected by moisture and staining
- Under no circumstances will they be extracted from areas that have been previously repaired or coated with graffiti or cover-up materials.

Core holes must be inspected for exposed cut reinforcement. Any reinforcement shall be protected with cementitious primer to protect against corrosion prior to repair of the holes.

A “Core Group” from sound concrete shall consist of four cores, extracted from the same area of the structure, as follows:

- One pair of six inch (6”) diameter by six inch (6”) deep cores furnished to the selected Concrete Testing Laboratory for the testing and analysis described herein.

- One 6 inch (6") diameter by 6 inch (6") deep core furnished to the Conservator which will serve as his control sample when evaluating the aggregates of a proposed mix design, or samples the may be furnished to him by the selected manufacturer of the concrete repair mortar under the noted items of the next bullet
- One 6 inch (6") diameter by 6 inch (6") deep core furnished to the selected manufacturer of the concrete repair mortar, for the purpose of baseline color matching of his mortar to the historic concrete (Color variations may be necessary from one repair to the next and shall be appropriately addressed as specified in the below items).

### Core Testing

Core testing shall be performed for the following reasons:

- Determination of the historic concrete mix design by Reverse Engineering, as defined in **Testing Laboratory Analysis**
- Determination of potential sources of deterioration
- Performing chloride and FTIR testing defined in **Testing Laboratory Analysis**

For bridges with areas of deteriorated concrete, additional cores may be taken at locations delineated by the Conservator for:

Determination of actual sources of deterioration (e.g. - depth of carbonation and chloride penetration)

Groups of up to 4 deteriorated concrete cores at a given bridge shall define a supplemental "Core Group".

Surrounding surfaces of the bridge and site shall be protected from damage and staining during the core removal work. All adjacent surfaces on bridges and in the vicinity including grass, shrubs, and trees shall be protected.

Cores shall be taken with standard concrete coring equipment, taking care to produce a core which contains both surface and base concrete material, including fine and coarse aggregates. The cores shall be 6" in diameter by 6" in depth unless otherwise approved by the Engineer.

### Labeling of Cores

All cores must be properly labeled. Each core is to be labeled with the following information:

- Bridge #
- Date core was taken
- Name of feature crossed (e.g. – roadway, railroad, or waterway)
- Location and purpose of core (e.g. - northwest wingwall, 4'-0" above grade, sound concrete; northwest wingwall adjacent to deteriorated concrete)

Do not mark the outer face of the core.

Core samples are to be kept clean and dry, sealed in a plastic bag and adequately labeled until furnished to the locations required herein. Testing shall be performed in a timely manner. Additional cores required by the testing agency for the purpose of completing the requirements of this specification may be approved by the Engineer but shall not bear additional cost.

#### Furnishing of Aggregates to the Conservator and Contractor

Coarse and fine aggregates shall be separated from one another and shall be furnished to both the Conservator and the Contractor in separate heavy duty, gallon-sized, clear, and re-sealable plastic bags or similarly sized heavy-duty, clear plastic containers. Each bag or container will represent the distribution of aggregates **as extracted from the tested and analyzed core sample(s) from which the mix proportions have been determined.** Each bag or container shall be labeled per the “Labeling of Cores” requirements noted above for accurate cross-referencing to the originating core samples and bridges.

The Conservator will use the sample aggregate distributions to evaluate the proposed mix designs as submitted under the requirements of the “Class ‘S’ Concrete for Historic Bridges” and “Class ‘C’ Concrete – Replicated” special provisions, as they apply to the project.

The Contractor will use the sample aggregates as well as the findings of the reports for the purpose of determining the matching fine and coarse aggregate types he will propose for the mix designs developed under the special provisions, “Class ‘S’ Concrete for Historic Bridges” and “Class ‘C’ Concrete – Replicated”.

#### Testing Laboratory Analysis

**Reverse Engineering:** Identify all components of the original concrete mix and proportions thereof, including water/cement ratio. The analysis shall include petrographic examination to identify components, air-void analysis to calculate volume proportions of paste, coarse and fine aggregate, air and air-void parameters (ASTM C457 modified point-count method), and cement content analysis (ASTM C1084) to calculate portland cement content. Aggregate identifications and gradations shall be assessed qualitatively using the standard procedures of ASTM C856. A comprehensive petrographic examination shall be included in this analysis and is described below.

**Petrographic Examination (ASTM C856):** Cores shall be examined using a combination of polished section, fractured section, and thin section analysis. The examination shall be comprehensive and shall be used to identify all components of the concrete design, assess overall quality of materials and original placement, identify distresses and investigate root causes of any observed deterioration. Features investigated shall include homogeneity of mix components and original hydration quality, depth of carbonation, reactions or potential reactivity of aggregates (e.g.; ASR), evidence of other distresses including freeze-thaw failure, sulfate attack or others. It is recommended that the nature of this deterioration be established to identify whether the distress is environmental in nature (e.g.; freeze-thaw distress due to lack of air-entrainment) or



intrinsic to the concrete materials (e.g.; ASR failure due to reactive aggregates) as this will inform the feasibility of repair options.

Water-Soluble Chloride Analysis (ASTM C1218): Excessive chloride salts may interfere with the bonding of repair materials. This test will establish those values. In addition, chloride contamination is often responsible for embedded reinforcement corrosion. Chloride content should be measured at the surface as well as at two additional depths distributed evenly throughout the depth of the recovered core to assess the diffusion profile in comparison to ACI recommended limits.

Fourier Transform Infrared Spectroscopy (FTIR): FTIR analyzes for any organic matter such as oils or previous coating residues that might act as bond-breakers for any planned repair patches. FTIR analysis should be performed by methanol extraction on the surface of uncleaned concrete. The test may also be performed on cleaned concrete to assess the success of the cleaning procedure where an unacceptable presence of organic matter has been determined.

Examination and Analysis of Hardened Masonry Mortar (ASTM C1324): This test method will be used to separate aggregates, through acid digestion, from the solid core sample. The separated aggregates will then be proportioned according to gradation, bagged, labeled, and delivered to the Conservator.

### **Testing Laboratory Report**

The Testing Laboratory shall furnish to the Engineer a set of eight (8) copies of each written report by the Testing Laboratory. Reports shall also be furnished to the Engineer in PDF format. The Contractor shall also be furnished with a hardcopy of the report. A separate report shall be prepared for each bridge, which shall include:

- Name of Testing Laboratory and contact information
- Bridge number and description of crossing
- Date on which core samples were extracted from bridge
- Number and sizes of cores tested
- Locations at which core samples were taken (specify whether cores were taken from sound or deteriorated concrete)
- Results of testing laboratory analysis as defined above
- An outline of test procedures
- As determined through reverse engineering, a concrete mix design that replicates the original. The mix design shall include the following:

Coarse aggregates – Provide a description of the coarse aggregates, including types, sizes, colors and shapes. Provide gradations of the various sizes of the coarse aggregates and types, colors and shapes of aggregates to accurately match those of the original mix as identified through the testing of the existing concrete.

Fine aggregates – A description of the gradations of the various sizes of the fine aggregates and types, colors and shapes of aggregates to accurately match those of the original mix as identified through the testing of the existing concrete.

Cement – The proportions of the cement type(s) and color(s) (e.g. – gray and white)

Water – The ratio of water to cement

- An evaluation of sound concrete for sources of potential deterioration
- A determination regarding causes and degree of actual concrete deterioration
- Color photographs cataloging the cores
- Optional: Additional color or black and white photos that the Test Laboratory determines to be of valuable visual information

When coatings and/or stains are specified, the Contractor shall submit one additional copy of the Testing Analysis Report to the Contractor for use by the manufacturer of the concrete coatings and stains. The manufacturer will determine and recommend proper cleaning methods for proper adhesion of his coatings to historic concrete for each bridge.

The Contractor shall allow 8 weeks for lab analysis and shall schedule his work accordingly. Any delay beyond 8 weeks for the testing lab to furnish the appropriate reports for use shall not be cause for a delay claim.

**Method of Measurement:** This work will be measured for payment by each core group, as defined elsewhere in this specification, furnished from those locations determined by the Engineer.

**Basis of Payment:** This work will be paid for at the contract unit price for each furnished “Core Group”, defined elsewhere in this specification, the cost of which shall include all material, equipment, tools, laboratory fees, furnishings to the Conservator, report development, technical representation by the Test Lab, and all labor incidental thereto.

Payment will be made for this item after complete testing has been performed and all required copies of a final Testing Laboratory Report have been submitted and approved for each bridge.

Payment for the repair of core holes shall be included for payment under this item.

<u>Pay Item</u>	<u>Pay Unit</u>
Testing and Analysis of Historic Concrete	ea

## **ITEM #0602901A - DRILLING HOLES AND GROUTING DOWELS**

**Description:** Work under this item shall consist of drilling holes in concrete and grouting dowels at the locations shown on the plans, in accordance with the plans, the manufacturer's recommendations, and as directed by the Engineer. For the purposes of this specification, a dowel is defined as a reinforcing bar.

**Materials:** The chemical anchoring material shall conform to Subarticle M.03.01-15.

**Construction Methods:** Before fabricating any materials, the Contractor shall submit manufacturer's specifications and installation for the chemical anchoring material to the Engineer for review in accordance with Article 1.05.02.

Holes for the dowels shall be located as shown on the plans. The holes shall clear the existing reinforcement and provide the minimum cover as shown on the plans. A pachometer shall be used to locate existing reinforcing steel. If existing reinforcing is encountered during the drilling operation, the holes shall be relocated and the uncompleted holes shall be filled with the chemical anchoring material and finished smooth and flush with the adjacent surface.

The depth and diameter of each hole shall be as shown on the plans. If the diameter of a hole is not shown, the diameter of the hole shall conform to the manufacturer's recommendations for the diameter of the dowel being anchored. If the depth and diameter of a hole are not shown, the hole shall conform to the manufacturer's recommendations for the diameter of the dowel being anchored such that the grouted dowels will be able to develop, in tension, 100 percent of its specified yield strength.

Hole drilling methods shall not cause spalling, cracking, or other damage to the existing concrete. The weight of the drill shall not exceed 6 kg. Those areas damaged by the Contractor shall be repaired by him in a manner suitable to the Engineer and at no expense to the State.

Prior to placing the chemical anchoring material in the holes, the holes shall be cleaned of all dirt, moisture, concrete dust and other foreign material. The dowel and the chemical anchoring material shall be installed in the holes in accordance with the chemical anchoring material manufacturer's recommendations.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the area below, which may result in damage to any existing construction or to adjoining property. Should any damage occur to the structure as a result of the Contractor's operations, the Contractor shall make repairs at his own expense. The repair work shall be approved in advance and shall be of a quality acceptable to the Engineer.

**Method of Measurement:** This work will be measured for payment by the number of drilled holes in which dowels are embedded and accepted.

**Basis of Payment:** This work will be paid for at the contract unit price each for "Drilling Holes and Grouting Dowels," which price shall include drilling and preparing holes, furnishing and installing the chemical anchoring material in the holes and all material, equipment, tools and labor. incidental thereto.

The cost for furnishing dowels shall be paid for under the item "Deformed Steel Bars".

## **ITEM #0602980A - CLEAN AND COAT EXPOSED REINFORCING STEEL**

**Description:** This item includes cleaning and coating exposed reinforcing steel with a zinc-rich coating system. This work also includes removal and disposal of loose or delaminated concrete and severely deteriorated reinforcing steel as determined by the Engineer.

**Materials:** The Contractor may select one of the following products and shall submit a Materials Certificate in accordance with 1.06.07:

Crown Cold Galvanize Coating 93% Zinc Rich  
7007VG  
Aervoe Industries, Inc.  
P.O. Box 485  
Gardnerville, NV 89410  
1-800-227-0196 or 1-775-783-3100  
[www.aervoe.com](http://www.aervoe.com)

ZRC Cold Galvanizing Repair Compound  
ZRC 221  
ZRC Worldwide  
145 Enterprise Drive  
Mansfield, MA 02050-2132  
1-800-831-3275 or 1-781-319-0404  
[www.zrcworldwide.com](http://www.zrcworldwide.com)

The Contractor may propose other products for the Engineer's acceptance by submitting a Materials Certificate and Certified Test Report in accordance with 1.06.07, showing that the coating meets these requirements:

- ASTM A780, Annex A2 with zinc dust concentration above 92% in the dried film;
- Zinc dust pigment shall conform to ASTM D520, Type III;
- The VOC content shall meet the current DEEP Air Compliance regulations for the coating category "zinc-rich primer;"
- Corrosion Performance Criteria: Must pass a minimum of 2000 hours of salt spray testing for a minimum of 2 mils of zinc in the dry film, without failure according to ASTM B117.

### **Construction Methods:**

**Submittals:** The Contractor shall prepare and submit written procedures and working drawings in accordance with 1.05.02.

The Submittals shall address the following:

- Proposed equipment and removal methods;
- Debris shields and access;
- Coating product information, including coating manufacturer, product name, application instructions, technical data and MSDS/SDS;
- The Manufacturer's written application instructions at a minimum shall contain the following:
  - Number of coats needed to meet the Corrosion Performance Criteria
  - Minimum wet film and dry film thickness per coat
  - Minimum and maximum recoat time
  - Thinning requirements if allowed by the Manufacturer.

1. **Inspection of the Repair Area:** The limits of concrete removal around the exposed reinforcing steel to be coated will be determined by the Engineer. The Engineer will also identify any severely corroded reinforcing steel that requires removal.

The Contractor shall provide clear access to the repair areas to determine the limits of concrete removal. During this time, the Engineer will perform an inspection of the repair area and designate where concrete removal is required. The inspection will use visual assessment as well as sounding for delamination (hammer tapping).

The Contractor must inform the Engineer, in writing, of the date that the repair location will be available for inspection operations and the method that will be used for access. Notification shall be given to the Engineer at least 7 days prior to the date so that the Engineer can plan accordingly and verify that the proposed method of access is acceptable.

The Contractor shall not perform any work to the repair location until all necessary inspection operations have been performed, unless given permission in writing by the Engineer. The Contractor shall include the time required for inspection in its overall construction schedule and shall include all costs associated with providing access for the Engineer.

2. **Removal of Deteriorated Concrete:** All deteriorated concrete designated for removal under this item shall be removed within the limits shown on the plans and where ordered by the Engineer. The limits of each area of concrete to be removed will be delineated by the Engineer and suitably marked.

Hand tools shall be used first to remove loose and hollow sounding concrete. If the concrete cannot be removed with hand tools, the Engineer may authorize the use of pneumatic hammers. The weight of pneumatic hammers, when used shall not exceed 15 pounds. The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent areas.

Where reinforcing steel is identified by the Engineer to be removed, a portion of the reinforcing steel shall be cut and removed.

3. **Cleaning Exposed Reinforcing Steel:** The surface of the exposed reinforcing steel shall be power tool cleaned according to SSPC-SP3 requirements to remove all concrete fragments, loose or powder-like rust, dust, dirt, loose particles, and other bond inhibiting matter. Surfaces shall be wiped down to remove the remaining dust and contaminants. Cleaning shall be done just prior to coating.
4. **Coating Exposed Reinforcing Steel:** The zinc-rich coating shall be prepared according to the Manufacturer's recommendations. During application, the container shall be agitated often to provide a homogenous mixture. The coating material shall be brush-applied in accordance with the manufacturer's written requirements. The surrounding concrete shall not be coated.

Care shall be taken to coat all exposed portions of each bar's perimeter and all exposed surfaces where bars overlap or are in contact with each other. Manufacturer's requirements for recoat times shall be strictly adhered to.

5. **Supply and Storage of Material:** All coatings shall be supplied in sealed containers bearing the Manufacturer's name, product designation and expiration date. Coating shall be furnished in the Manufacturer's original, sealed and undamaged containers. The Contractor shall provide a suitable facility for the storage of the coating, which is in accordance with the latest federal and state regulations.

**Method of Measurement:** This work will be measured for payment by the actual number of linear feet of reinforcing steel cleaned and coated and accepted by the Engineer. The length of coated reinforcing steel shall be measured along the exposed face of the bar. Where bars are adjacent to each other, the length of each bar shall be measured. No deduction in length shall be made where bars overlap.

**Basis of Payment:** This work will be paid for at the Contract unit price per linear foot for "Clean and Coat Exposed Reinforcing Steel," complete and accepted, which price shall include all materials, equipment, tools and labor incidental thereto, including access to the repair areas for repair and inspection, debris shields and disposal of debris.

Pay Item	Pay Unit
Clean and Coat Exposed Reinforcing Steel	l.f.

## **ITEM #0603475A - STRUCTURAL STEEL SIGN SUPPORT (PAINTED)**

### **Description:**

Work under this provision shall consist of furnishing, fabricating, transporting and erecting painted galvanized sign supports at those locations where existing extruded aluminum signs are to be relocated onto new supports and foundations or as directed by the Engineer.

### **Materials:**

The materials for this work shall conform to the following:

Steel shall conform to the requirements of the ASTM A 36.

High strength bolts shall conform to ASTM A 325, Type 1. Nuts shall conform to ASTM A 563, Grade DH or ASTM A 194, Grade 2H. Flat hardened washers shall conform to ASTM F 436. Bolts, nuts and washers shall be galvanized in conformance with ASTM A 153.

Hot-dip galvanizing shall conform to the requirements of ASTM A 123.

Zinc Rich Field Primer for touch-up shall conform to the requirements of Federal Specification TT-P-641-Type I, and ASTM A780. The use of Aerosol spray cans shall not be permitted.

The applied paint system over galvanized, aluminum and stainless steel hardware shall be one of the following:

#### **SHERWIN WILLIAMS**

Primer Coat	Recoatable Epoxy Primer
Finish Coat	Hi-Solids Polyurethane

#### **KEELER AND LONG**

Primer Coat	Kolor-Poxy #3200
Finish Coat	Kolorane U-Series Enamel

#### **CARBOLINE**

Primer Coat	Carboline 890 Primer
Finish Coat	Carbothane 134 HB Enamel

#### **AMERON**

Primer Coat	Vyguard Val Chem 13-F-62 Primer
Finish Coat	Vyguard V40 Series Urethane Enamel

The color of the finish coat shall be Charcoal Gray, Federal Standard 595 Color No. 26134.



Storage of the paint system materials shall be in a dry, well-ventilated area, not in direct contact with the ground, where the temperature is maintained between 10° and 38° C. Damaged materials and/or materials exceeding the manufacturer's recommended shelf life shall not be used.

### **Construction Methods:**

#### General:

Before starting fabrication of structural steel sign supports, the Contractor shall determine the actual locations and elevations of the foundations.

Contractor shall notify the Department of Transportation Office of Research and Materials 48 hours prior to fabrication of structural steel sign supports, hot-dip galvanizing and painting of structural steel, aluminum signs and associated hardware.

All hot-dip galvanizing and painting shall be performed in climate controlled shop ambient conditions.

#### Fabrication of Galvanized Sign Supports:

Structural steel sign supports shall be fabricated in conformity of the requirements of the plans or as ordered.

All welding shall conform to the requirements of the current AWS Structural Welding Code.

Steel surface defects such as fins, slivers, tears, delaminations, burrs, sharp edges and other defects shall be ground down with the use of a power disc grinder or other tools approved by the Engineer, to afford as close to a continuous surface characteristic as possible for coating material application and continuous film build. Defects that, in the opinion of the inspection personnel, are so large or deep that grinding may not rectify the defect, shall be referred to the Engineer for resolution.

After the posts have been fabricated, they shall be hot-dip galvanized in accordance with ASTM A 123.

#### Painting:

The galvanized structural steel sign supports, aluminum signs, and associated hardware shall be painted with the same paint system.

##### **(A) Site Foreman:**

The site foreman overseeing surface preparation and painting operations shall have the following:

- Copy of this provision
- Wet film thickness gauge
- Dry film thickness gauge

- Surface temperature and relative humidity gauges
- Psychometric charts or psychometric tables from the U.S. Weather Bureau
- Product data sheets and applicable instructions for the products specified
- Material Safety data sheets for the products specified

(B) Surface Preparation:

Surface preparation shall consist of cleaning galvanized, aluminum, and stainless steel surfaces in accordance with the methods listed herein. The cleaned surface shall be approved by the Engineer or his appointed inspector prior to any painting. Exposed bare steel surfaces on galvanized structures shall be touched up in accordance with ASTM A 780 prior to applying the paint system.

All foreign matter such as oil, grease, and dirt shall be cleaned from the surface using a bio-degradable cleaner (i.e. Carboline #3 Cleaner or Dev-Prep 88) in accordance with Steel Structures Painting Council Surface Preparation No. 1 (SSPC-SP1) "Solvent Cleaning." All surfaces shall then be brush blasted in accordance with SSPC-SP7 "Brush-Off Blast Cleaning" using a fine abrasive at nozzle pressures not to exceed 0.4 MPa. Brush blasting must be performed to 100% of the surface area being coated.

All surfaces brush blasted must be primed the same day.

(C) Application:

Handling, mixing, and all other facets of application and curing of paint shall be in accordance with the manufacturer's written instructions, unless otherwise instructed by the manufacturer, and in accordance with these specifications.

Paint, substrate, and air temperature at the time of application shall be between 15° and 38° C unless otherwise specified by the manufacturer.

Paint shall not be applied unless the temperature of the surfaces being coated is, and will remain, at least 3°C above the dew point until the coating is dry "to touch."

The relative humidity shall be less than 85% during application.

The paint shall be thoroughly mixed prior to and during application. Mechanical agitation during application may be necessary to keep pigment in suspension. Paint shall not be transferred (other than to simplify mixing) until all pigment has been incorporated. Air shall not be used directly for agitation.

Paint materials may not be used beyond the recommended pot life.

Thinners shall not be added to paint unless it is absolutely necessary for application. The amount of thinner used shall not exceed the manufacturer's recommendations for quantity and type. If used, the thinner shall only be added in accordance with the manufacturer's instructions, under the Engineer's presence.

Spraying is the preferred method of application. Brushing, rolling and/or mitt application may be used where appropriate.

The paint system shall have the following thickness:

Galvanized Surfaces

Primer Coat	75 to 125 microns Dry Film Thickness
Finish Coat	38 to 63 microns Dry Film Thickness

Aluminum and Stainless Steel Surfaces

Primer Coat	50 to 75 microns Dry Film Thickness
Finish Coat	38 to 63 microns Dry Film Thickness

Paint thickness will be determined in accordance with SSPC-PA-2 "Measurement of Dry Paint Thickness with Magnetic Gages." The number of readings will be a minimum of that stated in SSPC-PA-2.

Completed work shall be free from runs, drips, sags, holidays, voids, and other imperfections.

Any coating damaged prior to or during installation of structural steel sign supports and/or aluminum signs shall be repaired. Areas to be repaired shall be clean, dry, and free from grease, oil, corrosion products and other contamination. If contaminated, power wash or scrub with a stiff brush and clean water. Repair areas may be brushed or sprayed as appropriate. Damaged zinc shall be touched up in accordance with ASTM A 780. Spray aerosol cans of zinc rich primer will not be permitted. After the zinc rich primer has cured, the damaged paint system shall be touched up using the same material as the prime and finish coats.

All defective work shall be corrected by the Contractor at no cost to the Department.

(D) Compliance with Regulations:

The Contractor is required to meet all OSHA and EPA as well as state and local government regulations regarding worker safety and protection, hazardous waste handling and disposal through the use of appropriate containment, engineering controls, respirators, monitors, etc.

Painted Galvanized Sign Support Installation:

The painted galvanized sign support shall be erected in accordance with the details shown on the plans or as directed by the Engineer.

To prevent damage to surfaces of the sign supports during transportation, the members shall be wrapped or otherwise protected.

The sign support structure shall be erected with nylon slings or in a manner that will prevent damage to the finish coat of paint.

All damaged areas of the galvanizing and paint system shall be repaired. Damaged zinc shall be touched up in accordance with ASTM A 780. Spray aerosol cans of zinc rich primer will not be permitted. After the zinc rich primer has cured, the damaged paint system shall be touched up using the same material as the prime and finish coats.

**Method of Measurement:**

This work will be measured as follows:

Structural steel sign supports fabricated, painted and installed will be measured for payment based on the net weight of metal in the fabricated sign support structure. It shall include rivet heads, high tensile strength bolt-heads, nuts, stick-through and washers required. This net weight shall be determined by computation as described in Sub-article 6.03.04-1, unless it is provided that it be determined by scale weighing, as described in Sub-article 6.03.04-2. If the scale weight of any member is less than 97.5% of the computed weight, the member may be rejected.

There will be no measurement or direct payment for the surface preparation and painting of hardware for the aluminum signs and structural steel supports, but the cost of this work shall be considered as included in the general cost of the work.

**Basis of Payment:**

This work will be paid for as follows:

The structural steel and metal of the various other types covered by this section, incorporated in the completed and accepted structure, excluding the aluminum signs, stainless steel and galvanized hardware, will be paid for at the contract unit price per cubic weight for "Structural Steel Sign Support (Painted)," which price shall include furnishing, fabricating, transporting, erecting, surface preparation, galvanizing, paint, painting, and all materials, equipment, tools, labor and work incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Structural Steel Sign Support (Painted)	cwt

## **ITEM #0603726A - EMBEDDED GALVANIC ANODES**

**Description:** This item includes furnishing all labor, tools, materials, equipment and services necessary to install embedded galvanic anodes within areas of concrete repair or in other locations as shown on the plans.

**Materials:** The galvanic anodes shall have a cast zinc core meeting the requirements of ASTM B418 Type II (Z13000) and shall be one of the following:

1. Vector Corrosion Technologies, Inc.  
Galvashield XP4  
8413 Laurel Fair Circle, Suite 200A  
Tampa, FL 33610  
Tel: (813) 830-7566  
Website: [www.vector-corrosion.com](http://www.vector-corrosion.com)
2. Sika Corporation  
Sika FerroGard - 675  
201 Polito Avenue  
Lyndurst, NJ 07071  
Tel: (800)-933-7452  
Website: [www.sikaconstruction.com](http://www.sikaconstruction.com)
3. BASF Corporation  
Master Builders Solutions – MASTERPROTECT 8160CP  
889 Valley Park Drive  
Shakopee, MN 55379  
Tel: (800)-243-6739  
Website: [www.basf.com](http://www.basf.com)
4. Euclid Chemical Company  
Sentinel Gold  
19215 Redwood Road  
Cleveland, OH 44110  
Tel: (800)-321-7628  
Website: [www.euclidchemical.com](http://www.euclidchemical.com)

A Materials Certificate shall be submitted to the Engineer in accordance with 1.06.07 that certifies the anode as one of the listed products above.

**Construction Methods:****Submittals:**

The following information shall be submitted to the Engineer:

- The Manufacturer and product name, written instructions, including Manufacturer limitations on time during which anodes may be submersed in water as the substrate of the repair area is saturated.
- NACE CP2 Cathodic Protection Technician Certification of the Qualified Technical Representative (QTR). The Qualified Technical Representative supplied by the anode manufacturer shall hold and maintain such certification throughout the project.

**Installation:**

A minimum of two (2) weeks in advance of the scheduled installation of the anodes, the Contractor shall arrange for a Qualified Technical Representative (QTR) to train the employees of the Contractor and Department. The QTR shall review the plans and tailor the training to address specific details of the project. Training shall also include inspection procedures to detect different reinforcing bar configurations, installation procedures, quality control procedures, and documentation. The QTR shall be present to provide direction until the Contractor becomes proficient in the work to the satisfaction of the Engineer. The QTR shall also be available for consultation at such additional times during the work as requested by the Engineer.

In addition to the Contract documents, the work for this item shall be performed as directed by the Engineer, in accordance with the Manufacturer's recommendations and written instructions, and recommendations of the QTR.

Should the Engineer determine that the reinforcing steel size and spacing differs from the expected reinforcing layout, the Engineer will direct the Contractor regarding placement of anodes. The actual reinforcing bar density may be obtained by entering the bar size and spacing in the "Table of Reinforcing Steel Density Ratios" in the Appendix. Anode spacing shall not exceed that shown in the Appendix. Any spacing deviations shall allow for sufficient clearance around the anodes to allow concrete to encase the anode and be properly consolidated.

Reinforcing steel shall be clean and securely fastened together with tie wires to provide electrical connectivity. The Contractor shall secure the galvanic anodes to the reinforcing bars along the edge of the repair as shown on the plans, using the anode tie wires. The tie wires shall be wrapped around the cleaned reinforcing steel and twisted tightly to allow little or no free movement and to allow concrete to encase the anode. The Contractor shall place the anodes along a single bar or at the intersection between two bars. In addition, the Contractor shall place the anodes to provide two (2) inches of cover between the proposed form and the anodes. *[Note: this is to prevent the finished patch from sounding hollow when hammer-tapped.]* If less cover will result due to shallow bar location, additional localized removal of concrete may be required to place the anode behind the bar.

The Contractor shall test the connections between anodes and reinforcing steel for electrical continuity, as instructed by the QTR. The Contractor shall place additional tie wires or re-tie connections as directed to provide the specified continuity. The Contractor's testing shall:

- Confirm electrical connection between anode tie wire and reinforcing steel by measuring DC resistance in ohms ( $\Omega$ ) or potential (mV). Electrical connection is acceptable if the DC resistance measured is less than 1  $\Omega$  or the DC potential is less than 1 mV.
- Confirm electrical continuity of the exposed reinforcing steel within the repair area. Electrical continuity between test areas is acceptable if the DC resistance is less than 1  $\Omega$  or the potential is less than 1 mV.

The Contractor shall install anodes and concrete following preparation and cleaning of the steel reinforcement to ensure proper connectivity of the anodes. If significant surface rust forms before the concrete is placed, the bar must be re-cleaned and the anode-to-steel and bar-to-bar connectivity shall be re-verified and corrected as necessary.

Once anodes are installed, precautions shall be taken to prevent water from soaking the anodes prior to concrete placement. The substrate shall be saturated immediately prior to concrete placement, however, the anodes shall not be immersed longer than recommended by the Manufacturer.

**Method of Measurement:** This work will be measured for payment by the number of anodes installed and accepted.

**Basis of Payment:** This work will be paid for at the Contract unit price each for “Embedded Galvanic Anodes,” complete and accepted in place, which price shall include all applicable materials, equipment, tools, and labor incidental thereto. All services of a QTR, and testing of installed anodes are included in the Contract unit price.

The concrete and concrete removal will be paid under a separate item(s).

Pay Item	Pay Unit
Embedded Galvanic Anodes	ea.

## **APPENDIX TO ITEM #0603726A – EMBEDDED GALVANIC ANODES**

<b>MAXIMUM ANODE SPACING</b> Based on 160g Zinc Mass	
Steel Density Ratio	Maximum Anode Spacing (Inches)
< 0.31	24
0.31 - 0.60	20
0.61 - 0.90	16
0.91 - 1.20	14
1.21 - 1.50	10
1.51 - 1.80	8
1.81 - 2.10	6

Enter the left column in the table above with the Steel Density Ratio from TABLE OF REINFORCING STEEL DENSITY RATIOS below. Select the maximum anode spacing in the right column in the table above.

**TABLE OF REINFORCING STEEL DENSITY RATIOS**

Bar Size		5				6				7				8				9			
(#)	Spacing (inches)	6	9	12	18	6	9	12	18	6	9	12	18	6	9	12	18	6	9	12	18
5	6	0.65	0.55	0.49	0.44	0.72	0.59	0.52	0.46	0.79	0.63	0.56	0.48	0.85	0.68	0.59	0.50	0.92	0.72	0.62	0.52
	9	0.55	0.44	0.38	0.33	0.61	0.48	0.41	0.35	0.68	0.52	0.45	0.37	0.74	0.57	0.48	0.39	0.81	0.61	0.51	0.41
	12	0.49	0.38	0.33	0.27	0.56	0.43	0.36	0.29	0.62	0.47	0.39	0.32	0.69	0.51	0.43	0.34	0.75	0.56	0.46	0.36
	18	0.44	0.33	0.27	0.22	0.50	0.37	0.31	0.24	0.57	0.41	0.34	0.26	0.63	0.46	0.37	0.28	0.70	0.50	0.40	0.31
6	6	0.72	0.61	0.56	0.50	0.79	0.65	0.59	0.52	0.85	0.70	0.62	0.55	0.92	0.74	0.65	0.57	0.98	0.79	0.69	0.59
	9	0.59	0.48	0.43	0.37	0.65	0.52	0.46	0.39	0.72	0.57	0.49	0.41	0.79	0.61	0.52	0.44	0.85	0.65	0.56	0.46
	12	0.52	0.41	0.36	0.31	0.59	0.46	0.39	0.33	0.65	0.50	0.43	0.35	0.72	0.55	0.46	0.37	0.79	0.59	0.49	0.39
	18	0.46	0.35	0.29	0.24	0.52	0.39	0.33	0.26	0.59	0.44	0.36	0.28	0.65	0.48	0.39	0.31	0.72	0.52	0.43	0.33
7	6	0.79	0.68	0.62	0.57	0.85	0.72	0.65	0.59	0.92	0.76	0.69	0.61	0.98	0.81	0.72	0.63	1.05	0.85	0.75	0.65
	9	0.63	0.52	0.47	0.41	0.70	0.57	0.50	0.44	0.76	0.61	0.53	0.46	0.83	0.65	0.57	0.48	0.89	0.70	0.60	0.50
	12	0.56	0.45	0.39	0.34	0.62	0.49	0.43	0.36	0.69	0.53	0.46	0.38	0.75	0.58	0.49	0.40	0.82	0.62	0.52	0.43
	18	0.48	0.37	0.32	0.26	0.55	0.41	0.35	0.28	0.61	0.46	0.38	0.31	0.68	0.50	0.41	0.33	0.74	0.55	0.45	0.35
8	6	0.85	0.74	0.69	0.63	0.92	0.79	0.72	0.65	0.98	0.83	0.75	0.68	1.05	0.87	0.79	0.70	1.11	0.92	0.82	0.72
	9	0.68	0.57	0.51	0.46	0.74	0.61	0.55	0.48	0.81	0.65	0.58	0.50	0.87	0.70	0.61	0.52	0.94	0.74	0.64	0.55
	12	0.59	0.48	0.43	0.37	0.65	0.52	0.46	0.39	0.72	0.57	0.49	0.41	0.79	0.61	0.52	0.44	0.85	0.65	0.56	0.46
	18	0.50	0.39	0.34	0.28	0.57	0.44	0.37	0.31	0.63	0.48	0.40	0.33	0.70	0.52	0.44	0.35	0.76	0.57	0.47	0.37
9	6	0.92	0.81	0.75	0.70	0.98	0.85	0.79	0.72	1.05	0.89	0.82	0.74	1.11	0.94	0.85	0.76	1.18	0.98	0.88	0.79
	9	0.72	0.61	0.56	0.50	0.79	0.65	0.59	0.52	0.85	0.70	0.62	0.55	0.92	0.74	0.65	0.57	0.98	0.79	0.69	0.59
	12	0.62	0.51	0.46	0.40	0.69	0.56	0.49	0.43	0.75	0.60	0.52	0.45	0.82	0.64	0.56	0.47	0.88	0.69	0.59	0.49
	18	0.52	0.41	0.36	0.31	0.59	0.46	0.39	0.33	0.65	0.50	0.43	0.35	0.72	0.55	0.46	0.37	0.79	0.59	0.49	0.39

How to use the Table of Reinforcing Steel Density Ratios:

1. Enter the table with the first bar size and spacing in the top two rows. Identify that column.
2. Enter the bar size and spacing in the transverse direction in the first two columns. Identify that row.
3. Follow the identified column and row to their intersection and read the reinforcing steel density in that cell.
4. Enter the Maximum Anode Spacing Table with the Reinforcing Steel Density to select the maximum anode spacing.



## **ITEM #0707009A - MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)**

**Description:** Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, in accordance with this specification and as directed by the Engineer. Work shall also include conditioning of the surface to be coated and all quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat, two layers of the membrane coating (minimum total thickness of 80 mil and maximum total thickness not to exceed 120 mil), an additional 40 mil membrane layer with aggregate broadcast into the material while still wet, reinforcing material at deck panel joints and two applications of asphalt emulsion (tack coat) at a rate of 0.05-0.07 gal/s.y. each, allowing the first application to break prior to applying the second.

**Materials:** The Contractor shall select a waterproofing membrane system from the Department's current Qualified Product List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the works shall meet the Manufacturer's specification for the chosen system. The Engineer will reject any system that is not on the QPL.

Reinforcing material shall be as recommended by the manufacturer.

**Materials Certificate:** The Contractor shall submit to the Engineer a Materials Certificate for the primer, membrane and aggregate in accordance with the requirements of Article 1.06.07.

**Construction Methods:** At least 30 days prior to installation of the membrane system, the Contractor shall submit to the Engineer a Site-specific Installation Plan that includes the manufacturer's recommended procedure for preparing the deck surface, pre-treatment or preparing at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities, applying the primer and membrane, placing of aggregated coat and all Quality Control (QC Plan) testing operations to be performed during the membrane system's installation. Procedures shall also include recommended repairs of system non-compliant issues identified during application. The system shall be applied to the prepared area(s) as defined or shown in the plans, strictly in accordance with the Installation Plan.

A technical representative, in the direct employ of the manufacturer, shall be present on-Site immediately prior to and during application of the membrane. The representative shall inspect and approve the surface prior to priming, and provide guidance on the handling, mixing and addition of components and observe application of the primer and membrane. The technical representative shall perform all required QC testing and remain on the Project site until the membrane has fully cured.

All QC testing, including verbal direction or observations at the time of installation, shall be recorded and submitted to the Engineer for inclusion in the Project records. The QC testing data

shall be received by the Department's project personnel prior to any paving over the finished membrane, or within 24 hours following completion of any staged portion of the work.

1. **Applicator Approval:** The Contractor's membrane Applicator shall be fully trained and licensed by the membrane manufacturer and shall have successfully completed at least three spray membrane projects in the past five years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the submittal of the Installation Plan. The Engineer shall have sole authority to determine the adequacy and compliance of the submitted information. Inadequate proof of ability to perform the work will be grounds to reject proposed applicators.

2. **Job Conditions:**

- (a) **Environmental Requirements:** Air and substrate temperatures shall be between 32°F and 104°F and the substrate shall be above the dew point. Outside of this range, the Manufacturer shall be consulted.

The Applicator shall be provided with adequate disposal facilities for nonhazardous waste generated during installation of the membrane system. The applicator shall follow safety instructions regarding respirators and safety equipment.

- (b) **Safety Requirements:** All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

"No Smoking" signs shall be visibly posted at the Site during application of the membrane waterproofing.

Personnel not involved in membrane application shall be kept out of the work area.

3. **Delivery, Storage and Handling:**

- (a) **Packaging and Shipping:** All components of the membrane system shall be delivered to the Site in the Manufacturer's packaging, clearly identified with the product type and batch number.
  - (b) **Storage and Protection:** The Applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on Site for review by the Engineer or other personnel.

- (c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf life date sealed by the Manufacturer. No membrane components whose shelf life has expired shall be used.

#### 4. Surface Preparation:

- (a) Protection: The Applicator shall be responsible for the protection of equipment and adjacent areas from over spray or other contamination. Parapets and bridge joints shall be masked prior to application of the materials.
- (b) Surface Preparation: Sharp peaks and discontinuities shall be ground smooth. Any peak greater than ¼ inch above the surface profile of the prepared substrate shall be ground to the surrounding elevation. Any valley or minor surface deterioration of ½ inch or greater shall also be repaired. The extent and location of surface patches require the approval of the Engineer before the membrane system is applied.

Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, and previous waterproofing materials. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance.

Voids, honeycombed areas, and blow holes on vertical surfaces shall be repaired as indicated in the Installation Plan.

All steel components to receive membrane waterproofing shall be blast cleaned in accordance with SSPC SP6 and shall be coated with the membrane waterproofing system within the same work shift.

#### 5. Inspection and Testing: Prior to priming of the surface, the Engineer, Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

- (a) Random tests for deck moisture content shall be conducted on the substrate by the Contractor at the Site using a "Sovereign Portable Electronic Moisture Master Meter," a "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. The minimum frequency shall be one test per 1000 s.f. but not less than three tests per shift for each contiguous section worked on during that shift. Additional tests may be required if atmospheric conditions change and retesting of the substrate moisture content is warranted.

The membrane system shall not be installed on substrate with a moisture content greater than 6%, or at a moisture content above the amount recommended by the system's Manufacturer, whichever is less.

- (b) Random tests for adequate tensile bond strength shall be conducted by the Contractor on the substrate using an adhesion tester in accordance with the requirements of ASTM D4541. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

Adequate surface preparation will be indicated by tensile bond strengths of primer to the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation. Any primer not adequately applied shall be removed and new primer applied at the Contractor's expense, as directed by Engineer.

- (c) Grouted joints, materials that the membrane cannot bond to, and cracks or discontinuities that cannot be bridged over by the membrane material shall be covered by a reinforcing material recommended by the membrane system's Manufacturer prior to application of membrane layers as approved or directed by the Engineer.

## 6. Application:

- (a) The System shall be applied in the following distinct steps as follows:
  - 1) Substrate preparation
  - 2) Priming
  - 3) Reinforcing material application over grouted joints, cracks, etc.
  - 4) Membrane application (minimum 2 layers)
  - 5) Membrane with aggregate
- (b) Immediately prior to the application of any components of the System, the surface shall be adequately dry (see Section 5(a) of this specification) and any remaining dust or loose particles shall be removed using clean, dry, oil-free compressed air or industrial vacuum.
- (c) Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the membrane system shall be continued up the vertical, if shown on the plans or directed by the Engineer.
- (d) The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results, in accordance with the Manufacturer's recommendations or as approved or directed by the Engineer.

- (e) A neat finish with well defined boundaries and straight edges shall be provided by the Applicator.
- (f) Primer: The primer shall consist of one coat with an overall coverage rate of 125 to 175 s.f./gal unless otherwise recommended in the Manufacturer's written instructions.

All components shall be measured and mixed in accordance with the Manufacturer's recommendations.

The primer shall be spray applied using a single component spray system approved for use by the Manufacturer. If required by Site conditions and allowed by the manufacturer brush, squeegee or roller application will be allowed.

The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

Porous concrete (brick) may require a second coat of primer should the first coat be absorbed.

- (g) Membrane and Reinforcing Material: Application of the membrane on the primed surface shall not commence until the primer is cured as described in Section 6(f) of this specification and the adhesion pull tests are completed in accordance with Section 5(b) of this specification.

The waterproofing membrane shall consist of two coats for a total dry film thickness of a minimum 80 mils but not to exceed 120 mils. Adjacent coats shall be of a contrasting color to aid in Quality Assurance and inspection. Any reinforcing material shall be applied immediately before the first coat of membrane in accordance with the Manufacturer's recommendations.

The membrane shall be comprised of Components A and B and a hardener powder which is to be added to Component B in accordance with the Manufacturer's recommendations.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out once every 100 s.f. Where rapid set time of the membrane does not allow for wet film thickness checks, ultrasonic testing (steel surfaces only), calibrated point-penetrating (destructive) testing, in-situ sampling (cutout of small sections for measuring thicknesses), or other methods approved by the Engineer shall be employed for determination of dry film

thickness. The measured thickness of each and every individual test of the membrane shall be greater than or equal to the required thickness.

**Bond Strength:** Random tests for adequate tensile bond strength shall be conducted on the membrane in accordance with the requirements of ASTM D4541. The minimum test frequency shall be one test per 5,000 s.f. but no less than three adhesion tests per bridge. Adequate adhesion will be indicated by tensile bond strengths of the membrane to the substrate of greater than or equal to 150 psi or failure in a concrete surface, and greater than or equal to 300 psi for steel surfaces.

Repair the membrane system following destructive testing and correct any deficiencies in the membrane system or substrate noted during QC testing in accordance with the Manufacturer's recommendations to the satisfaction of the Engineer at no additional cost to the State.

- (h) **Repairs:** If an area is left untreated or the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials and wiped with solvent (e.g. acetone) up to a width of at least four inches on the periphery, removing any contaminants unless otherwise recommended by the Manufacturer. The substrate shall be primed as necessary, followed by the membrane layers. A continuous layer shall be obtained over the substrate with a four-inch overlap onto existing membrane.

Where the membrane is to be joined to existing cured material, the new application shall overlap the existing by at least four inches. Cleaning and surface preparation on areas to be lapped shall be as recommended in the Manufacturer's written instructions.

- (i) **Aggregated Finish:**
  - 1) Apply an additional 40 mil thick layer of the membrane material immediately followed by an aggregate coating, before the membrane cures, at a rate to fully cover the coated area to a point where no membrane material is visible. The membrane and aggregate shall be fully integrated after the aggregate has been applied and the membrane cured.
  - 2) Localized areas not fully coated shall be touched-up with additional membrane and aggregate as needed.
  - 3) Using motorized mechanical sweepers or a vacuum sweeper apparatus, remove all loose and excess aggregate from the surface to the satisfaction of the Engineer and dispose of properly after application prior to allowing traffic onto finished surface or application of tack coat. Any areas not fully coated after sweeping shall be touched up with additional membrane and aggregate as needed.

7. **Final Review:** The Engineer and the Applicator shall jointly review the area(s) over which the completed system has been installed. Any irregularities or other criteria that do not meet the requirements of the Engineer shall be addressed at this time.

**Method of Measurement:** This item shall be measured by the number of square yards of waterproofed surface completed and accepted.

**Basis of Payment:** This item will be paid for at the Contract unit price per square yard of “Membrane Waterproofing (Cold Liquid Elastomeric),” complete and accepted in place, which price shall include all surface preparation, furnishing, storing and applying the system, technical representative and Quality Control testing, and any necessary repairs and remediation work as well as all materials, equipment, tools, labor incidental to this work.

Pay Item	Pay Unit
Membrane Waterproofing (Cold Liquid Elastomeric)	s.y.

## **ITEM #0712010A - REINFORCED SOIL SLOPE**

**Description:** This work shall consist of furnishing material for and constructing a reinforced soil slope, reinforced with geosynthetic soil reinforcement, in accordance with these specifications and in reasonable close conformity to the lines, grades, and dimensions shown on the plans or as directed by the Engineer.

**Materials:** Materials shall conform to the following requirements

1 - Geosynthetic Reinforcement Material - The geosynthetic reinforcement shall consist of a geogrid or geotextile that can develop sufficient mechanical interaction with the surrounding soil or rock. The geosynthetic reinforcement structure shall be dimensionally stable, able to retain its geometry under construction stresses, and shall have high resistance to damage during construction, to ultraviolet degradation, and to all forms of chemical and biological degradation encountered in the soil being reinforced. The permeability of the geosynthetic reinforcement shall be greater than the permeability of the reinforced fill soil.

Geogrid used as geosynthetic reinforcement shall be a regular network of integrally connected polymer tensile elements consisting of either a polypropylene (PP), a polyethylene (HDPE), or a polyester (PET). The geogrid shall have certified properties as shown in Table 1.

Geotextile used as geosynthetic reinforcement may be woven or nonwoven but no “slit-film” woven fabrics will be permitted. The geotextile shall have certified properties as shown in Table 2. All property values represent Minimum Average Roll Value (MARV) in the weakest principal direction and shall meet or exceed the values stated below.

The Contractor shall submit a manufacturer’s certification that the geosynthetic supplied meets the requirements as shown in the respective table, measured in full accordance with all test methods and standards specified, as set forth in these specifications, and in conformance with Article 1.06.07.

The geosynthetic reinforcement shall be manufactured with a high degree of quality control. The Manufacturer is responsible for establishing and maintaining a quality control (QC) program to ensure compliance with the requirements of the specification. The purpose of the QC testing program is to verify that the geosynthetic reinforcement being supplied to the project is representative of the material used for performance testing and approval by the department.

Conformance testing shall be performed as part of the manufacturing process and may vary for each type of product. As a minimum, the following index tests shall be considered as applicable for an acceptable QA/QC program: Wide Width Tensile (ASTM D-4595 for geotextiles and ASTM D-6637 for geogrids); Specific Gravity (HDPE only, ASTM D-1505); Melt Flow Index (HDPE and PP only, ASTM D-1238); Intrinsic Viscosity (PET only, ASTM D-4603); Carboxyl End Group (PET only, ASTM D-2455); and Single Rib Tensile (Geogrid only, ASTM D-6637). Sampling and conformance testing shall be in accordance with ASTM D-4354. Conformance testing procedures shall be established as noted in the specification. Geosynthetic product acceptance shall be based on ASTM D-4759.



The quality control certificate shall include roll number and identification, sampling procedures, and results of control test (including a description of test methods used).

**Table 1**

<b>Geogrid Type</b>	<b>Property</b>	<b>Test Method</b>	<b>Criteria</b>
All Polymers	Long Term Allowable Tensile Strength ( $T_{all}$ )	GRI:GG4, where $T_{all} = T_{ult} / (RF_{CR} * RF_{ID} * RF_D)$	Min. 1000 lbs./ft. (Machine Direction) Min. 220lbs./ft. (Cross-machine Direction)
Polyester	Geogrid Rib Tensile Strength ( $T_{ult}$ )	ASTM D6637	Min. 2420 lbs./ft.
Polypropylene	Geogrid Rib Tensile Strength ( $T_{ult}$ )	ASTM D6637	Min. 4840 lbs./ft.
Polyethylene	Geogrid Rib Tensile Strength ( $T_{ult}$ )	ASTM D6637	Min. 3025 lbs./ft.
Polyester	Creep Reduction Factor ( $RF_{CR}$ )	ASTM D 5262	Min. 2.0
Polypropylene	Creep Reduction Factor ( $RF_{CR}$ )	ASTM D 5262	Min. 4.0
Polyethylene	Creep Reduction Factor ( $RF_{CR}$ )	ASTM D 5262	Min. 2.5
All Polymers	Installation Damage Reduction Factor ( $RF_{ID}$ )	ASTM D 5818	Min. 1.1
Polyester	Durability Reduction Factor ( $RF_D$ )	Hydrolysis Degradation Testing (extrapolated to 100yrs)	Min. 1.1
Polypropylene and Polyethylene	Durability Reduction Factor ( $RF_D$ )	Oxidation Degradation Testing (extrapolated to 100yrs)	Min. 1.1

**Table 2**

<b>Property</b>	<b>Test Method</b>	<b>Elongation</b>	
		<b>&lt;50%<sup>A</sup></b>	<b>≥50%<sup>A</sup></b>
Grab Strength -lbs	ASTM D4632	315	202
Sewn Seam Strength <sup>B</sup> -lbs	ASTM D4632	283	182
Tear Strength -lbs	ASTM D4533	112	79
Puncture Strength - lbs	ASTM D6241	618	433
Ultimate Strength (Tult) –lbs/ft	ASTM D4595	Min. 2420	
Long Term Allowable Tensile Strength (T <sub>all</sub> ) – lbs/ft	FHWA <sup>C</sup>	Min. 1000	

<sup>A</sup> As determined in accordance with ASTM D4632. The strengths specified in the columns labeled “<50%” and “≥50%” refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation, then it must meet or exceed the minimum strength shown in the “<50%” column. Submittals must include the percent elongation at which the material was tested.

<sup>B</sup> When sewn seams are required.

<sup>C</sup> Long Term Allowable Tensile Strength shall be determined by applying appropriate reduction factors to the Ultimate Tensile Strength of the geotextile to account for installation damage, survivability, creep, durability and degradation. A 100-year design life shall be used in determining the long term allowable tensile strength. The FHWA methodology (FHWA NHI-10-024 (Berg et al., 2009)) shall be used for this computation. Proposed strength and reduction factors are subject to approval. Minimum durability reduction factor is 1.10. Minimum installation damage factor is 1.10. The creep reduction factor should be developed from creep tests performed in accordance with ASTM D5262 and is subject to the minimums presented in Table 1 for the respective material.

2 - Compacted Granular Fill - Compacted Granular Fill shall conform to the requirements of Article M.02.01.

3 - Slope Underdrain and Outlet for Underdrain - The pipe for Underdrain and Outlet for Underdrain shall conform to the requirements of Article M.08.01. The material for sealing and coupling of joints shall conform to the requirements of Article M.08.01. The aggregates placed around the pipes shall conform to the gradation requirements for Size No. 8 under Article M.01.01.

4 - Conservation Seeding for Slopes with Erosion Control Matting - The materials for this work shall conform to the requirements of Article M.13 and the special provision for Conservation Seeding for Slopes. The Erosion Control Matting shall be Class 1, Type D. Anchors for the Erosion Control Matting shall be a 9 gage-U Shaped Staple, with a minimum dimension of 12"x1"x12".

**Construction Methods:** The Contractor shall insure that during all periods of shipment and storage, the geosynthetic material is protected from mud, dirt, all deleterious materials that might become affixed to it, and temperatures greater than 140°F. Follow manufacturer's recommendations with regards to protection from direct sunlight. At the time of installation, the geosynthetic shall be free of any defects, including, but not limited to tears, punctures, flaws, deterioration, or any damage due to manufacture, transportation, and storage.

All areas beneath the installation area for the geosynthetic reinforcement shall be properly prepared as detailed on the plans, specified within this specification, or as directed by the Engineer. All excavation required for construction of the slope shall conform to Article 2.02. Subgrade surfaces shall be level. The subgrade surface shall also be free from deleterious materials, loose soil, topsoil, organic soils, frozen soil, or any other unsuitable material. Prior to placement of geosynthetic reinforcement, subgrade shall be proof-rolled to provide a uniform and firm surface. Any soft areas, as determined by the Engineer, shall be excavated and replaced with suitable compacted soils. The foundation surface shall be inspected and approved by the Engineer prior to placement of geosynthetic and Compacted Granular Fill. Benching the backcut into competent soil shall be performed as shown on the plans or as directed by the Engineer and in conformance with Subarticle 2.02-5, paragraph 3, so as to ensure stability.

The geosynthetic shall be installed in accordance with the plans, specifications, and manufacturer's recommendation. The geosynthetic reinforcement shall be placed within the layers of the Compacted Granular Fill as shown on the plans, or as directed by the Engineer.

The primary geosynthetic reinforcement shall be placed in continuous, longitudinal strips in the direction of main reinforcement. If the Contractor is unable to complete a required length with a single continuous length of geogrid, a joint may be made with the Engineer's approval. Only one joint per length of geogrid shall be allowed. This joint shall be made for the full width of the strip by using a similar material with similar strength. Joints in geogrid reinforcement shall be pulled and held taut during placement of Compacted Granular Fill. The minimum length of geogrid placed shall be 6 feet. For primary geogrids, joints shall not be placed within 6 feet of the slope face. Adjacent, overlying, and underlying rolls of geogrid shall not have a joint within 6 feet of each other. Joints shall not be permitted with geotextiles.

Horizontal coverage of less than 100% shall not be allowed. Adjacent strips of geosynthetic need not be overlapped as long as 100% coverage is maintained.

Place only that amount of geosynthetic reinforcement required for immediately pending work to prevent undue damage. After a layer of geosynthetic reinforcement has been placed, the next succeeding layer of soil shall be placed and compacted as appropriate. After the specified soil layer has been placed, the next geosynthetic reinforcing layer shall be installed. The process shall be repeated for each subsequent layer of geosynthetic reinforcement and soil.

Geosynthetic reinforcement shall be placed to lay flat and pulled tight prior to backfilling. After a layer of geosynthetic reinforcement has been placed, suitable means, such as pins or small piles of soil, shall be used to hold the geosynthetic reinforcement in position until the subsequent soil layer can be placed.

During construction, the surface of the fill should be kept approximately horizontal. Geosynthetic reinforcement shall be placed directly on the Compacted Granular Fill surface. Geosynthetic reinforcements are to be placed within 3 inches of the design elevation view unless otherwise directed by the Engineer. The Contractor shall verify correct orientation of the geosynthetic reinforcement.

Compacted Granular Fill shall be placed and compacted as specified in Article 2.14, with the following amendments. The Contractor shall be allowed a maximum lift of 12 inches. In addition, the Compacted Granular Fill shall be placed, spread, and compacted in such a manner to minimize the development of wrinkles and/or displacement of the geosynthetic reinforcement. The Compacted Granular Fill shall be graded away from the slope crest and rolled at the end of each work day to prevent ponding of water or erosion on the surface of the reinforced soil mass.

Tracked construction equipment shall not be operated directly upon the geosynthetic reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geosynthetic reinforcement. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and the geosynthetic reinforcement.

The Engineer may allow rubber tired equipment to pass over the geosynthetic reinforcement at speeds less than 10mph. Sudden braking and sharp turning shall be avoided.

The Slope Underdrain and Outlet for Underdrain shall be installed as shown on the plans and as specified in Article 7.51.

Conservation Seeding for Slopes with Erosion Control Matting shall be placed as specified in Article 9.50 and the special provision for Conservation Seeding for Slopes. Seeding and/or mulch shall be placed prior to placement of Erosion Control Matting. The Conservation Seeding for Slopes with Erosion Control Matting shall be performed immediately upon completion of each 5 foot vertical section of geosynthetic reinforcement and Compacted Granular Fill. Anchors shall be placed and spaced such that there is 1 anchor per 2 square feet of matting. The Erosion Control Matting shall be placed horizontal along the face of the slope with the upper matting overlapping the lower matting by 12". Anchors shall be placed in the center of the overlap with 1 foot spacing.

The Contractor shall begin construction of the reinforced soil slope no earlier than March 15<sup>th</sup>, and have the reinforced slope constructed, seeded, and Erosion Control Matting installed by October 15<sup>th</sup> of the same calendar year. Out of season seeding will not be permitted.

**Method of Measurement:** This work will be paid for on a lump sum basis and will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract lump sum price for "Reinforced Soil Slope", complete in place, which price shall include all work shown within the pay limits shown

on the contract drawings for the reinforced soil slope including but not limited to the following: supply and installation of Geosynthetic reinforcement; Compacted Granular Fill; Slope Underdrain; Outlet for Underdrain; Conservation Seeding for Slopes with Erosion Control Matting; temporary soil berm and outlet; and earth excavation. The price shall also include all tools, labor, equipment, and material incidental thereto. If boulders in excess of 1 cubic yard are encountered in the excavation, the boulder(s) shall be removed and paid for in accordance with Article 2.02, "Rock Excavation".

Pay Item	Pay Unit
Reinforced Soil Slope	L. S.

## **ITEM #0811014A – MERRITT PARKWAY CONCRETE CURBING**

Work under this item shall conform to the requirements of Section 8.11 of the ConnDOT Standard Specifications, Form 818, supplemented and amended as follows:

**Subarticle 8.11.03-2 Construction Methods-Placing of Concrete:** Delete the second and third paragraph and replace with the following:

Only slip formed method shall be used for the installation of the Merritt Parkway Concrete Curbing and shall conform to the details as shown on the plans. Expansion joints shall be provided every 25 ft. The expansion joint shall be the full depth and width of the curb and gutter section. A construction joint shall be provided every 12.5 ft at a depth of at length  $\frac{1}{4}$  the depth of the section. All joints shall be saw cut once the concrete has reached a strength of 800 psi or as directed by the engineer.

Prior to the installation of the Merritt Parkway Curbing, the Contractor shall submit to the Engineer the list of the experienced Subcontractor or Persons, who shall install the curbing. This experience shall constitute the successful installation of curbing at least once in past four (4) years.

Any temporary shifting of temporary precast concrete barrier curb required to install the slip form curbing will not be measured for payment and is to be included in the cost of the curbing.

**Subarticle 8.11.03-3 Construction Methods-Forms:** Delete this subarticle in its entirety.

**Article 8.11.05 – Basis of Payment:** Delete the existing paragraph and replace with the following:

This work shall be paid for at the contract unit price per linear foot for “Merritt Parkway Concrete Curbing” complete in place, which price shall include but not be limited to all saw cutting; excavation and disposal of surplus material; formation of subgrade; subbase; slip forms; closure pours to close temporary drainage openings; any temporary shifting of temporary precast concrete barrier curb required to install the slip form curbing; backfilling and all materials, HMA material used to patch roadway adjacent to installed curb, equipment, tool and labor incidental thereto.

### PAY ITEM

Merritt Parkway Concrete Curbing

### PAY UNIT

l.f.

**ITEM #0821012A – MERRITT PARKWAY MEDIAN BARRIER**

Work under this item shall conform to the requirements of Section 8.21 of the ConnDOT Standard Specifications, Form 818, supplemented and amended as follows:

**Article 8.21.05** – Basis of Payment: Delete the existing paragraph and replace with the following:

This work shall be paid for at the contract unit price per linear foot for “Merritt Parkway Median Barrier” complete in place, which price shall include all reinforcing steel, dowels, penetrating sealer protective compound, transportation, equipment, tools and labor incidental thereto.

**PAY ITEM**

**PAY UNIT**

Merritt Parkway Median Barrier

l.f.

## **ITEM #0821019A – MERRITT PARKWAY BARRIER**

**Description:** Work under this item consists of furnishing and installing cast-in-place concrete Merritt Parkway barrier adjacent to existing bridge barrier or abutments, rock cuts, or other locations as shown on the plans, as directed by the Engineer and in accordance with these specifications.

### **Materials:**

1 - Concrete: The concrete shall conform to the requirements of Section M.03, Class PCC04462. The cured concrete color shall be a match to adjacent precast Merritt Parkway Median Barrier sections through the proportional use of white and gray Portland cements. A 14-day cured mock-up of this match shall be approved by the Engineer and Conservator prior to placement of concrete for the barrier sections.

2 - Reinforcing: The reinforcing shall be uncoated and conform to ASTM A615, Grade 60.

3 - Joint Seal: Joint seal shall conform to the requirements of Section M.03.08 under the "Joint Sealants" subarticle.

4 - Closed Cell Elastomer: Shall conform to the requirements of Section M.03.08.

**Construction Methods:** Mixing, placing, curing, and finishing of the concrete shall be in accordance with Article 6.01.03.

Any newly placed concrete having a hollow sound when sounded with a hammer shall be replaced by the Contractor at his expense by a method acceptable to the Engineer.

A rubbed finish, in accordance with Article 6.01.03 except as noted herein, shall be applied to all new concrete surfaces within three days. This shall be accomplished along the entire length of the barrier in one operation to ensure uniformity of finish. Failure to perform an acceptable rubbed finish within the three day period may be cause for rejection of the barrier.

Joint sealing shall be done in accordance with Article 6.01.03.

Joint locations shall be as shown on the plans.

**Method of Measurement:** This work will be measured for payment by the number of linear feet of Merritt Parkway Barrier, completed and accepted.

**Basis of Payment:** This work will be paid for at the contract unit price per foot, for "Merritt Parkway Barrier", complete in place, which price shall include all materials, equipment, tools and labor incidental thereto.



The cost for drilling and grouting dowels will not be measured for payment under this item and will be paid for under the item “Drilling Holes and Grouting Dowels”.

Pay Item	Pay Unit
Merritt Parkway Barrier	l.f.

## **ITEM #0821995A – PRECAST CONCRETE ENDBLOCK**

**Description:** Work under this item shall consist of furnishing and installing precast concrete endblocks in an augered hole at the locations indicated, as shown on the plans, as directed by the Engineer and in accordance with these specifications.

### **Materials:**

1. The concrete mix design shall meet the requirements of M.03.02, Class PCC055562, and shall be submitted to the Engineer.
2. Manufacturer identification and casting date shall be permanently marked on each endblock unit by means of a non-corrosive metal or plastic tag in the location as approved by the Engineer.
3. All reinforcing steel shall be galvanized and shall meet the requirements of M.06.01.
4. All threaded concrete inserts, lifting fixtures, and miscellaneous hardware cast into precast concrete components shall be galvanized in accordance with ASTM A153 or ASTM B695 Grade 50. All portions of the lifting and seating devices shall be recessed from the finished concrete surface. Preference shall be given to using lifting techniques (such as a padded sling) that do not require lifting devices that require grouting after placement of the endblock.
5. Non-shrink grout shall conform to Section M.03.05.
6. Endblock will be accepted on the basis of the manufacturer's certification, as defined in Article M.08.02-4.
7. Permanent Casing: Casing shall conform to Article M.06.02. Casings shall be steel, smooth, clean, watertight, and of ample strength to withstand handling, installation, and the pressure of both controlled low strength material and the surrounding earth materials. The inside diameter of casing shall not be less than the specified diameter of shaft.

### **Construction Methods:**

1. **Submittals:** All submittals shall include a title sheet with the following:
  - Project number, town and crossing.
  - Bridge number, when shown on the plans.
  - Design code, as applicable.
  - Contact information for fabricator – contact information shall include name and address of the fabricator and the name of contact person with phone number and email address.
- (a) **Shop Drawings - Precast Concrete Components:** Prior to fabrication, the Contractor shall submit an individually packaged set of shop drawings for the precast concrete components to the Engineer for review, in accordance with the plans and 1.05.02. Each

shop drawing package shall include details necessary for fabrication of each unique component, handling and installation of the precast concrete components, supporting documents for all materials incorporated into the precast concrete components and for other materials provided by the fabricator.

- (b) **Working Drawings - Lifting and Seating Devices :** Prior to fabrication, the Contractor shall submit working drawings and supporting computations for the embedded lifting and seating devices required for the handling and installation of the precast concrete components at each location to the Engineer for review in accordance with 1.05.02. Prior to applying load to the embedded devices, the concrete shall attain the minimum concrete compressive strength associated with the safe working load of the device.
- (c) **Working Drawings - Installation of Precast Concrete Components:** Prior to installation of the precast concrete components, the Contractor shall submit working drawings and supporting computations for the lifting and placement of the precast concrete components, to the Engineer for review in accordance with 1.05.02. Cranes shall be operated in accordance with the Connecticut Department of Public Safety regulations. The Contractor shall be responsible for verifying the weight of each lift. The working drawing submittal shall include, but not be limited to the following:
- Plan of the work area showing all structures, roads, railroad tracks, Federal and State regulated areas as depicted on the plans, overhead and subsurface utilities, property lines, or any other information relative to erection. No picks shall be allowed over vehicular, pedestrian, railway or vessel traffic.
  - A detailed narrative describing the lifting and installation sequence.
  - Manufacturer's data sheet for the crane(s) including the load/capacity chart. The capacity of the crane shall be adequate for the total lift/pick load including rigging, spreaders and other materials. In the area of railroads and navigable waterways, the capacity shall be as required by the regulatory authorities.
  - Manufacturer's data sheets and product data sheets for all rigging (slings, spreader bars, blocks, etc.), lifting devices, and other connecting equipment and hardware listing the number, type, size, arrangement and capacity of each.
  - Location of each crane for each pick.
  - Crane support measures, including any support beneath the outriggers such as bearing pads, crane mats, planking or special decking, or other means to transfer the crane's total weight (including the lifted load) into the earth or structure beneath it.
  - Delivery location of each component.
  - Boom length and the lift and setting radius for each pick (or maximum lift radius).
  - Pick point location(s) on each component.
  - Lifting weight of each component including rigging (clamps, spreader beams, etc.)

2. **Fabrication:** The endblock shall be precast concrete in conformance with the pertinent requirements of Article 8.21.03 and the plans, except that penetrating sealer protective compound is not required and shall not be used where staining of the endblock is anticipated.

3. **Shipping and Handling:** Any precast concrete components damaged during storage, transportation or handling shall be repaired or replaced by the Contractor, at its own expense, as directed by the Engineer.
4. **Augered Hole:** The augered hole for the pre-cast endblock shall be constructed with the following methods:
  - (a) General Methods and Equipment: The Contractor shall perform the excavations required for the precast endblocks through whatever materials are encountered, to the dimensions and elevations shown in the plans or otherwise required by the specifications and special provisions. The Contractor's methods and equipment shall be suitable for the intended purpose and materials encountered. Blasting shall not be permitted. The permanent casing method may be used.
  - (b) Casing Construction Method: The permanent casing method may be used to prevent hole caving or excessive deformation of the hole. The casing may be either placed in a predrilled hole or advanced through the ground by twisting or driving before being cleaned out. Placement of the casing by vibration shall not be allowed.
  - (c) Excavation and Drilling Equipment: The excavation and drilling equipment shall have adequate capacity, including power, torque and down thrust to excavate a hole of both the necessary diameter and to a depth of 20 percent beyond the depths shown on the plans. The excavation and overreaming tools shall be of adequate design, size and strength to perform the work shown in the plans or described herein. When the material encountered cannot be drilled using conventional earth augers with soil or rock teeth, drill buckets, grooving tools, and/or underreaming tools, the Contractor shall provide special drilling equipment, including but not limited to: rock core barrels, rock tools, air tools, blasting materials, and other equipment as necessary to construct the foundation excavation to the size and depth required.
  - (d) Excavation: Augered holes shall be made at the locations and to the estimated bottom of the augered hole elevations, excavation geometry and dimensions shown in the contract documents. The Contractor shall extend the depth of the augered hole when the Engineer determines that the material encountered during excavation is unsuitable and/or differs from that anticipated in the design of the precast endblock. Augered hole excavation may include, but not necessarily be limited to, clay, silt, sand, gravel, cobbles, boulders, weathered rock, and miscellaneous fill.

The Contractor shall maintain a construction method log during excavation of the augered hole. The log shall contain information such as: the description and approximate top and bottom elevation of each soil or rock material encountered, seepage or ground water, and remarks including a description of the tools and drill rigs used and any changes necessitated by changing ground conditions.

Excavated materials that are removed from augered hole shall be disposed of by the Contractor in accordance with the applicable specifications for disposal of excavated materials and in conformance with Article 1.10 of the Standard Specifications.

The Contractor shall not permit workers to enter the excavation for any reason unless: both a suitable casing has been installed and the water level has been lowered and stabilized below the level to be occupied, and adequate safety equipment and procedures have been provided to workers entering the excavation.

- (e) Rock-in-Foundation Excavation: Rock-in-Foundation Excavation is excavation of competent rock, accomplished with conventional rock drilling tools, such as core barrels, attached to drilling equipment of the size, power, torque, and down thrust (crowd) as required to remove the material. Top of competent rock is as defined as rock material that exceeds 50% of the cross-sectional area of the designed foundation hole and as designated by the Engineer.
- (f) Lost Tools: Drilling tools that are lost in the excavation shall be promptly removed by the Contractor without compensation. All costs due to lost tool removal shall be borne by the Contractor including, but not limited to, costs associated with the repair of hole degradation due to removal operations or an excessive time that the hole remains open.
- (g) Casing: Casings shall be steel, smooth, clean, watertight, and of ample strength to withstand both handling and installation and the pressure of both concrete and the surrounding earth materials. The casing shall be continuous between top and bottom elevations prescribed in the plans. The inside diameter of casing shall not be less than the specified diameter of augered hole. No extra compensation will be allowed for controlled low strength material required to fill an oversized excavation. After installation is complete, the permanent casing shall be cut off at the prescribed elevation.

Permanent casing shall maintain intimate contact with the surrounding earth after installation. Use of an oversized hole or temporary casing outside the permanent casing beneath the ground surface will not be allowed without written permission by the Engineer. Should an oversized hole or temporary casing outside the permanent casing beneath the ground surface be allowed by the Engineer, grouting of the exterior annular space shall be provided by the Contractor to create intimate contact between the casing and the surrounding ground. The grouting shall extend from the bottom of the annular space to an elevation determined by the Engineer. No compensation will be paid to the Contractor for grouting of the exterior annular space. In cases where the Engineer has approved the use of temporary casings in conjunction with permanent casings the Contractor shall maintain both alignment of the temporary casing with the permanent casing and a positive, watertight seal between the two casings during excavation and concreting operations.

5. Excavation Inspection: The Contractor shall check the dimensions and alignment of each augered hole excavation. Final augered hole depths shall be measured with a suitable weighted tape or other approved methods after final cleaning. The Contractor shall provide equipment and access to the Engineer for confirming dimension, alignment, and bottom cleanliness. Required shaft cleanliness will be determined by the Engineer. The bottom of the augered hole is acceptable as is if:
- A. The material at the bottom of the hole is granular and not compressible
  - B. The bottom of the hole is clean and level
  - C. The depth is suitable for setting the precast concrete endblock so the bottom of the endblock shaft rests on the bottom of the augered hole and the top of endblock will be at the specified height above the proposed roadway gutterline.
6. Construction Tolerances: The following construction tolerances apply to the augered hole and endblock installation unless otherwise stated in the contract documents:
- (a) The center of the augered hole shall be within 2 inches of plan position in the horizontal plane at the plan elevation for the top of the augered hole.
  - (b) The vertical alignment of the augered hole shall not vary from the plan alignment by more than 1/4 inch per foot of depth.
  - (c) All casing diameters shall refer to inside diameter dimensions. The dimensions of casings are subject to American Pipe Institute tolerances applicable to regular steel pipe. When approved, the Contractor may elect to provide a casing larger in diameter than shown in the plans, but there will be no increased payment for Controlled Low Strength Material.
  - (d) The completed augered hole will have a planar bottom after granular fill or crushed stone has been placed.
  - (e) The cutting edges of excavation equipment shall be normal to the vertical axis of the equipment within a tolerance of 3/8 inch per foot of diameter.
  - (f) The pre-cast endblock shall be able to be installed plum in the augered hole, with the augered hole back filled with controlled low strength material, such that the endblock is within 1 inch of plan position in the horizontal plane at the plan elevation for the top of the augered hole.

Augered holes and pre-cast endblocks not constructed within the required tolerances are unacceptable. The Contractor shall be responsible for correcting all unacceptable augered holes and endblock installations to the satisfaction of the Engineer. Materials and work necessary, including engineering, to complete corrections for out-of-tolerance augered hole excavations and endblock installations shall be furnished without either cost to the State or an extension of the completion date of the project.

The Contractor shall submit any repair procedures to the Engineer for review and approval. If these plans involve change or impact the structural design or capacity of the precast endblock, or the geometry of the augered hole, any redesign proposed in the Contractor's plan shall be performed at the Contractor's expense and stamped by a qualified Professional Engineer registered in the State of Connecticut.

7. Precast Concrete Endblock Installation: If the material at the bottom of the augered hole is soft or otherwise unsuitable, additional material shall be removed until adequate crushed stone or granular fill may be placed to create a suitable base on which the precast concrete endblock may rest. The endblock shaft shall be set in the hole so the base of the shaft rests at the bottom. The top of endblock shall be at the specified height above proposed finished grade. Once the endblock is located and oriented as shown on the plans and the shaft is plumb, it shall be secured in that position. While held securely in position, controlled low strength material (CLSM) shall be placed in the space between the augered hole and the endblock shaft. Fast-setting concrete of an appropriate mix design may be requested as a substitution for CLSM and shall be placed through a hose extended to the bottom of the augered hole. Methods of placement of concrete and consolidation around the endblock shaft shall be submitted with the request. CLSM shall not be allowed to free-fall to the bottom of the augered hole. CLSM shall be placed uniformly around the shaft so uneven pressure does not develop and cause the shaft to shift in the hole. Controlled low strength material shall be placed to make full contact with the underside of the cap and extend an additional 1" above the bottom of the cap.

Lifting of the endblock should preferably be done by padded straps slung below the endblock cap on both sides of the shaft. Should this not afford a reasonable means of lifting and placing the endblock, lifting hooks or other hardware may be installed in the endblock. Such hardware shall be embedded within a pocket in the top of the cap that will allow at least 1 inch of grout to cover the device, once the pocket is grouted.

After the endblock is securely anchored in CLSM, temporary braces may be removed. Roadway pavement may then be placed and compacted against the endblock under the appropriate contract item. Topsoil may then be placed around the endblock outside of the pavement limits as directed by the Engineer. The topsoil shall then be seeded, fertilized and mulched as directed by the Engineer.

**Method of Measurement:** This work will be measured for payment by each precast concrete endblock furnished, installed, and accepted by the Engineer.

**Basis of Payment:** This work will be paid for at the contract unit price each for "Precast Concrete Endblock", complete in place, which price shall include furnishing, transportation, materials (which include but are not limited to casings, granular fill, crushed stone, topsoil, seeding, fertilizer, and mulch), equipment, tools, excavation (auguring), disposal of surplus materials, and all labor incidental thereto.

When competent rock is encountered within the limits of excavation, its removal shall be included in the cost of the Precast Concrete Endblock.

The cost for “Controlled Low Strength Material”, including any additional material required to fill the excavation beyond the designed foundation dimensions due to the removal of rock, shall be paid for under the item, “Controlled Low Strength Material”

Any precast concrete endblock that is damaged or defaced shall be replaced by the Contractor at no cost to the State.

<u>Pay Item</u>	<u>Pay Unit</u>
Precast Concrete Endblock	Each



**ITEM #0822002A – RELOCATED TEMPORARY PRECAST CONCRETE  
BARRIER CURB**

**Subarticle 8.22.04 Method of Measurement:**

*Add the following to the end of the second paragraph;*

Measurement for payment shall only include the relocation of temporary precast concrete barrier curb required for major construction stage shifts in accordance with the guidance provided on the stage construction sheet located within the Contract plans. Any temporary shifts for the construction of slip-form curbing or any type of Merritt Parkway barrier shall not be measured for payment. Upon removal or relocation of temporary barrier, the contractor shall sweep the roadway free of earth and other construction debris, prior to opening roadway to traffic.

## **ITEM #0904050A – TWO TUBE RETROFIT BRIDGE RAIL**

**Description:** Work under this item shall consist of the furnishing, fabrication, hot-dip galvanizing, and installation of steel two-tube retrofit bridge rail system as shown on the plans, as directed by the Engineer and in accordance with these provisions.

### **Materials:**

#### **1. Structural Steel:**

(a): The structural-tube railing including splice and expansion sleeves shall be made from structural tubing in accordance with ASTM A500, Grade B or ASTM A501. Tube sections shall be hot-dip galvanized after fabrication in accordance with the requirements of ASTM A123.

(1): Charpy V-Notch Impact Testing: Structural steel comprising the two-tube retrofit bridge rail shall meet the Charpy V-Notch impact requirements of ASTM A370.

(b): The posts and any other shapes and/or plates shall be made from structural steel in accordance with ASTM A709 Grade 36 (ASTM A709M, Grade 205). The posts shall be galvanized in accordance with ASTM A123.

**2. Rail Post Anchor Bolts:** Rail Post Anchor bolts shall conform to the requirements of ASTM A325 (A325M), 120 ksi (830MPa) minimum tensile strength. Nuts shall conform to ASTM A563, Grade B hex, washers shall conform to ASTM F436. Anchor bolts, nuts and washers shall be hot-dip galvanized in accordance with ASTM A153.

**3. Other Bolts and Nuts:** All other bolts and nuts shall conform to the requirements of ASTM A307. Nuts shall conform to ASTM A563, Grade B hex, washers shall conform to ASTM F436. Bolts, nuts and washers shall be hot-dip galvanized in accordance with ASTM A153.

**4. Molded Pads:** Molded pads shall be manufactured from new unvulcanized elastomer and unused synthetic fibers, with a weight proportion of fiber content equal to approximately one-half of the total weight of the pad. The pads shall be formed into single sheets of 1/8"(3mm) minimum thickness, with a tolerance of plus or minus 10 percent. Pads shall have a Shore A Durometer hardness within the range of 70 to 90.

The Contractor shall furnish a Materials Certificate in conformance with the requirements of Article 1.06.07 for the following materials: rails, rail sleeves, support brackets, post connections devices, rail splices, preset anchorages, bolts, washers and molded pads.

### **Construction Methods:**

**1. General fabrication requirements:** The two-tube bridge rail system shall be fabricated and assembled in accordance with Sections 6.03.03-3 through 6.03.03-6. The cost of

inspection of shop welds shall be considered included in the cost per linear foot of the subject item.

All welds shall be accomplished before any component is galvanized. Any welding after galvanizing will be cause for rejection of that particular component.

Tubular components, rail posts, and other shapes and/or plates shall be hot-dip galvanized in accordance with ASTM A123 following fabrication.

The railings shall be accurately fabricated and installed as shown on the plans. Lengths of rail elements shall be continuous over a minimum of four rail posts wherever possible and in no case less than two. Welding of two or more rails to form an element will not be allowed. Rail splices shall be located between the support brackets. Splice bars shall have a sliding fit in the rail sections.

**2. Welding requirements:** Steel welding shall be in accordance with the American Welding Society “Structural Welding Code-Steel, ANSI/AWS D1.1-2006.

**3. Shop Plans:** Shop plans shall be submitted to the Engineer in accordance with the requirements of Article 1.05.02-3, prior to the fabrication of any material. The drawings shall include material lists, and material designations.

**4. Fabrication Initiation – Notice to Engineer:** The Contractor shall provide the Engineer a minimum of two (2) weeks prior notice to the structural fabrication of the two-tube retrofit bridge rail and galvanizing. Work shall not be initiated until the Engineer has been notified and their representative is on-site.

**5. Installation:** The two-tube bridge rail shall be carefully adjusted prior to fixing in place to insure proper matching at abutting joints and correct alignment throughout its length. All bolts shall be securely tightened. Bolts, nuts and washers shall receive touch-up galvanizing where necessary after final tensioning. Careful attention shall be given to bolted connections to ensure that all bolts, nuts and washers are fully galvanized and that no gaps are left uncoated.

**6. Touch-up:** Touch-up for damaged areas that extend back to the steel surface of the galvanized bridge rail, (such as scratches, gouges or nicks) shall conform to the requirements of ASTM A780.

The open ends of the bridge rail shall be closed using end caps.

**Method of Measurement:** This work will be measured for payment by the number of linear feet of two-tube retrofit bridge rail, completed and accepted.

**Basis of Payment:** The work will be paid for at the contract unit price per linear foot for “Two Tube Retrofit Bridge Rail” complete in place which price shall include all material, equipment, tools and labor incidental thereto.

**ITEM #0910051A - MERRITT PARKWAY MEDIAN GUIDERAIL**

**ITEM #0910052A - MERRITT PARKWAY GUIDERAIL**

**ITEM #0910053A - MERRITT PARKWAY GUIDERAIL REPLACEMENT PARTS**

**ITEM #0910054A - MERRITT PARKWAY GUIDERAIL (SYSTEM 2)**

**ITEM #0910055A - MERRITT PARKWAY GUIDERAIL (SYSTEM 3)**

**ITEM #0912104A - DRILLING HOLE FOR GUIDERAIL POST**

**ITEM #0910058A - MERRITT PARKWAY GUIDERAIL LEADING END ATTACHMENT**

**ITEM #0910059A - MERRITT PARKWAY GUIDERAIL TRAILING END ATTACHMENT**

**Description:** Work under this item shall consist of a single steel-backed timber rail element fastened to steel posts and the appropriate treatment at fixed objects, bridge parapets and terminal ends as shown on the plans. It shall be erected in the locations sited and fabricated in conformity with the designations, dimensions and details shown on the plans or as ordered by the engineer.

**Materials:**

1. **Steel:** All steel posts, back rails and splice plates shall conform to Subarticle M.06.02-1(b), and be manufactured from ASTM A588 steel. The dimensions of each component shall conform to the plans and ASTM A6. All steel posts shall be galvanized after fabrication to meet the requirements of ASTM A123. The galvanized coating shall conform to the limits and tolerances shown on the plans. Back rails, splice plates, and non-galvanized portions of posts shall be uncoated. A single 3/4" diameter hole may be drilled 2" from the top of each post, in the center of the web, to facilitate the galvanizing process.
2. **Timber:** All timber rail and block-out components shall conform with the following:
  - a) Commercial lumber grade No. 1 or better after treatment;
  - b) AASHTO M 168;
  - c) Minimum stress rating of 1350 psi

- d) Rough sawn (non-planed) or S4S (surface four side) Southern Yellow Pine or Douglas Fir-Larch with nominal dimensions as indicated on the plans. Variations in the size of any dimension shall not be more than  $\pm \frac{1}{4}$ "
  - e) All timber components shall be pressure treated with CCA or ACZA depending on species supplied conforming to AWPAs Standard P5 to a minimum net retention of 0.60lb/cubic foot in the assay zone in accordance with AWPAs Standard C14.
  - f) All timber components shall be fabricated (including but not necessarily limited to cutting, drilling, dapping and chamfering) prior to treatment.
  - g) All timber components shall be free of excess preservative and solvent at the conclusion of the treating process. Post treatment cleaning shall be by expansion bath or steaming in accordance with AWPAs Standard C2;
  - h) Kiln or air dried to a maximum moisture content of 25% after treatment (KDAT - 25);
  - i) Grade-marked after treatment by an agency certified by the American Lumber Standard Committee (ALSC).
3. **Fasteners:** Round head bolts shall be manufactured in accordance with the sizes designated on the plans, the geometric specifications included in ANSI B18.5.1.2.2 and the material specifications for ASTM A588 steel. All round head bolts shall be marked with the manufactures symbol and A588. Hex Lag Screws shall be manufactured in accordance with ASTM A307 Grade A specifications. All Hex Lag Screws shall be hot-dipped galvanized in accordance with ASTM A153 Class C.

**Construction Methods:** The steel posts shall be driven. The Contractor shall use suitable caps and equipment to prevent damage to the posts during driving. Where rock or boulders are encountered in driving the posts, the material shall be removed so as to make a hole of sufficient size to permit the setting of the post. The hole shall then be backfilled and thoroughly compacted before the driving of the posts.

The Contractor is cautioned that within the limits of any project, buried cables for illumination or utilities, which may be energized, may be present.

The posts shall be located as shown on the plans, set plumb and in alignment with the rail or rail treatments. The block outs and rail elements shall then be erected to produce a smooth continuous rail as shown on the plans. The rail shall be installed to produce a smooth vertical profile.

Whenever rail or rail treatments are being constructed adjacent to roadways open to traffic, the Contractor shall complete the installation to and including the designated terminal treatment at the close of each day's work.

On long runs or other locations where it is not practical to complete the installation to and including the designed terminal treatment by the end of each day's work, the Contractor shall use temporary

methods for terminating the beam rail so as to minimize any hazard caused by leaving the end of the beam rail exposed to traffic. Temporary methods for terminating the beam rail shall include lowering the rail end to the ground and providing adequate anchorage of the rail end by bolting, securing, burying, etc.

The Contractor shall submit to the Engineer for approval details of his proposed methods for temporary terminating the end section. No work shall be performed adjacent to the areas open to traffic until approval is given.

The Contractor shall be required to furnish extra length posts at transition areas or where field conditions warrant. These posts shall be of such length that the minimum depth in the ground, as shown on the plans, is maintained.

Before final erection, all galvanized elements which have been cut or worked so as to destroy the zinc coating and cause the base metal to be exposed shall have the exposed base metal thoroughly cleaned and brush coated with zinc rich touch up material.

**Method of Measurement:** The length of Merritt Parkway Guiderail and Merritt Parkway Median Guiderail measured for payment will be the number of linear feet of accepted rail of the type or designation installed, measured along the top of the rail between centers of end posts in each continuous section.

“Merritt Parkway Guiderail (Type) End Attachment” shall be measured for payment by the actual number of each attachment installed in accordance with the “Pay Limit for attachment” as designated on the plans.

“Merritt Parkway Guiderail Replacement Parts” shall be measured at an Estimated Cost of \$25,000 dollars.

“Drilling Hole for Guiderail Post” shall be measured to the nearest 4” in depth of actual rock encountered and removed.

**Basis of Payment:** Merritt Parkway Guiderail and Merritt Parkway Median Guiderail will be paid for at the contract unit price per linear foot for the type or designation indicated on the plan or ordered by the Engineer, complete in place. The price shall include all materials, fittings, back-up rail, posts, delineators, equipment, and tools and labor incidental to the installation of the rail.

“Merritt Parkway Guiderail (Type) End Attachment” to parapets or barriers will be paid for at the contract unit price each as shown on the plans or as ordered by the Engineer, complete and in place. The price shall include all materials, fittings, back-up rails, posts, anchor bolts, attachment brackets,

drilling and grouting, chemical anchoring material, delineators, equipment, removal and disposal of surplus material, removal of existing rail, tools and labor incidental to the installation of the rail.

Drilling in or removal of rock or boulders and backfilling with suitable material when required for the installation of posts will be paid for at the contract unit price per foot of depth for "Drilling Hole For Guiderail Post". The price shall include all materials, equipment, tools, and labor incidental thereto.

The sum of money shown on the estimate for "Merritt Parkway Guiderail Replacement Parts", and in the itemized proposal as "Estimated Cost", for this item will be considered the bid price although payment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

Pay Item

Pay Unit	
Merritt Parkway Median Guiderail	L.F.
Merritt Parkway Guiderail (Type)	L.F.
Drilling Hole for Guiderail Post	L.F.
Merritt Parkway Guiderail (Type) End Attachment	EA
Merritt Parkway Guiderail Replacement Parts	EST

**ITEM #0911476A - MERRITT PARKWAY GUIDERAIL END  
ANCHORAGE-TYPE I**

**ITEM #0911477A - MERRITT PARKWAY GUIDERAIL END  
ANCHORAGE-TYPE II**

Work under this item shall conform to the requirements of section 9.11, supplemented and amended as follows:

**Description:** This item shall consist of furnishing and installing terminals for sections of Merritt Parkway Guiderail (MPG) as shown on the plans. It contains appropriate treatments for anchorage of MPG end sections that are buried outside of the roadway clear zone, buried in earth-cut slopes, and anchored in rock-cut slopes as shown on the plans or as ordered by the Engineer.

**Materials:**

1. **Steel:** All steel posts, back-up rails, splice plates and structural tees shall conform to Section M.10.02.1. The dimensions of each component shall conform to the plans and ASTM A6. A single  $\frac{3}{4}$ " diameter hole may be drilled 2" from the top of each post, in the center of the web, to facilitate the galvanizing process. All steel posts, back-up rails, splice plates and structural tees shall be hot-dipped galvanized after fabrication in accordance with ASTM A123.
2. **Timber:** All timber rail and block-out components shall conform with the following:
  - a) Commercial lumber grade No. 1 or better after treatment;
  - b) AASHTO M 168;
  - c) Minimum stress rating of 1350 psi;
  - d) Rough sawn (non-planed) or S4S (surface four side) Southern Yellow Pine or Douglas Fir- Larch with nominal dimensions as indicated on the plans. Variations in the size of any dimension shall not be more than  $\pm 1/4$ ".
  - e) All timber components shall be pressure treated with CCA or ACZA depending on species supplied conforming to AWPAs Standard P5 to a minimum net retention of 0.60lb/cubic foot in the assay zone in accordance with AWPAs Standard.
  - f) All timber components shall be fabricated (including but not necessarily limited to cutting, drilling, dapping and chamfering) prior to treatment.
  - g) All timber components shall be free of excess preservative and solvent at the conclusion of the treating process. Post treatment cleaning shall be by expansion bath or steaming in accordance with AWPAs Standard C2;
  - h) Kiln or air dried to a maximum moisture content of 25% after treatment (KDAT - 25);

ITEM #0911476A  
ITEM #0911477A



- i) Grade-marked after treatment by an agency certified by the American Lumber Standard Committee (ALSC).
- 3 . Fasteners:** Anchor bolts shall conform to ASTM A449. The nuts and washers for anchor bolts shall conform to ASTM A563, Grade B. Round head bolts shall be manufactured in accordance with the sizes designated on the plans, the geometric specifications included in ANSI B18.5.1.2.2 and the material specifications for ASTM A307 steel. All round head bolts shall be marked with the manufactures symbol and A307. Rock anchors shall be manufactured in accordance with the sizes designated on the plans and the specifications for ASTM A307 steel. Hex lag screws shall be manufactured in accordance with the sizes designated on the plans and the specifications for ASTM A307, Grade-A steel. All anchor bolts, round head bolts, rock anchors and hex lag screws shall be hot-dipped galvanized in accordance with ASTM A 153 Class C. Unless other wise noted on the plans, all other fasteners shall conform to the requirements of M.10.02.9.

## **ITEM #0913043A – 8' POLYVINYL CHLORIDE CHAIN LINK FENCE**

**Description:** Work under this item consists of furnishing and installing chain link fencing in accordance with the details shown on the plans.

**Materials:** Materials for this work shall be as follows:

1. **Chain Link Fabric:** The fabric shall be a black, Polyvinyl Chloride (PVC) - coated steel chain link type, conforming to the specifications of ASTM F668, Class 2b, thermally fused and bonded. The #9 gage core wire shall be galvanized, PVC-coated, then woven to create a continuous fabric having a two inch mesh, knuckled at both top and bottom. The PVC coating shall be the color black as described in ASTM F934.

2. **Base Plates, Posts, Rails and Tension Wire:** Cold formed electric resistance welded steel pipe complying with ASTM F1043 Group IC having minimum steel yield strength of 50,000 psi. Burrs and sharp edges shall be removed and smoothed before galvanizing.

Base plate assembly, where shown on the plans, shall conform to AASHTO M270 (ASTM A709), Grade 50. Weldable deformed steel bars used as dowels to anchor the base plate assembly shall meet the requirements of ASTM A706. Round steel bars shall conform to ASTM A36. All welding shall conform to the requirements of Sub article 6.03.03-2(c). Burrs and sharp edges shall be removed and smoothed before galvanizing. The base plate assembly shall be hot-dip galvanized after fabrication in accordance with ASTM A123.

Tension wire shall be 7 gauge (core), wire complying with ASTM F1664, with a Class 2b thermally fused and bonded, black coating to match the fabric.

3. **Coating Requirements:** External protective coating meeting ASTM F1043 Type B, 0.9 oz/ft<sup>2</sup> (270 g/m<sup>2</sup>) minimum hot-dip zinc coating plus a chromate conversion and a clear polymer coating, plus a minimum 10 mil (0.254 mm) thermally fused PVC color coating in accordance with F1043. Internal coating F1043 Type D, 81% nominal zinc pigmented coating minimum 3 mils (0.0076 mm) thick or Type B, minimum 0.9 oz/ft<sup>2</sup> (275 g/m<sup>2</sup>) zinc. The color of the coating shall be black and conform to ASTM F934. The coating shall not fade, crack, blister or split under normal use. It shall have demonstrated the ability to endure a salt spray resistance test conducted in accordance with ASTM B117 without loss of adhesion for a minimum exposure time of 3,500 hours. Additionally, the coated framework shall have demonstrated the ability to withstand exposure in a weatherometer apparatus for 1000 hours without failure when tested in accordance with ASTM D1499. Adhesion of the coating shall be tested in accordance with the parallel line test or the cross hatch test as referenced in ASTM F1043.

4. **Fence Fittings and Tension Bars:** All materials and coating requirements shall conform to the specifications of ASTM F626. All fittings shall receive the same coating system as the posts and rails. The ties used to fasten the fabric to the post and rails shall not be less than #6 and #9 gage respectively.

5. **Neoprene or Closed Cell Elastomer Pad:** Pads beneath base plates shall conform to ASTM D1056, Grade 2A2 or 2A3 and shall be suitable for outdoor applications. Weather and ozone resistance shall be classified as "Excellent." Pads shall have a Shore A Durometer hardness within the range of 70 to 90.

6. **Galvanizing Compound:** Galvanizing compound shall conform to the requirements of Federal Specification TT-P-641b or Military Specification MIL-P-21035.

7. **Non-shrink Grout:** Grout used to anchor fence posts in preformed holes shall be non-shrink and non-staining and shall conform to the requirements of Subarticle M.03.05.

8. **Silicone Joint Seal:** Joint seal placed around the base of the posts to seal the interface between the post and the non-shrink grout shall conform to the requirements of the special provision "Section 6.01 - Concrete for Structures."

9. **Chemical Anchoring Material:** Chemical anchoring material for securing anchor bolts and dowels shall conform to the requirements of Subarticle M.03.07.

10. **Aluminum:** The angle used to close openings shall be extruded aluminum and conform to the requirements of ASTM B221, Alloy 6063-T6.

11. **Expansion Anchors:** Anchors shall be as shown on the plans and shall be manufactured from Type 316 stainless steel.

12. **Preset Anchorage:** The preset anchorage when specified on the plans shall conform to the requirements listed below.

The preset anchorage shall be fabricated as detailed on the contract plans. Preset anchorages configured differently from those detailed on the plans may be used provided they utilize the same materials described below and are approved by the Engineer prior to fabrication. The wire struts shall be cold-drawn and conform to ASTM A510, Grade 1030 with minimum tensile strength of 100,000 psi. These wire struts shall be securely welded to the ferrules with the welds capable of developing the tensile strength of the struts and the ferrules.

The ferrules, either open end or closed end, shall conform to ASTM A108, Grade 12L14. A plastic cap shall be provided for sealing the bottom of each open end ferrule before placing concrete. Closed end ferrules shall provide a minimum full thread length of 2". Removable plastic washers of the same diameter as the ferrules and approximately 3/32" in thickness shall be provided for the top of each ferrule and shall be left in place until the temporary supporting bolts are removed. Removable plastic caps shall be provided for sealing the top of each ferrule until the erection of fence posts.

After fabrication, the preset anchorage shall be hot-dip galvanized in accordance with ASTM A123.

Bolts for the preset anchorage shall conform to the requirements of ASTM A307. The washers shall be standard circular washers conforming to ASTM F844. The bolts and washers shall be hot-dip galvanized in accordance with ASTM A153.

**13. Threaded Rod, Bolts, Nuts and Washers:** Threaded rod and bolts shall conform to the requirements of ASTM A307, Grade A. Nuts shall be hex style, Grade A, conforming to the requirements of ASTM A563 and washers shall be standard, circular plain washers conforming to the requirements of ASTM F844. Threaded rods, bolts, nuts and washers shall be hot-dip galvanized after fabrication in accordance with the requirements of ASTM A153, Class C.

All components of the chain link fence shall be the color black as described in ASTM F934. Coating which exhibits fading, peeling or chipping will be cause for rejection of the shipment.

**Materials Certification and Testing:** The Contractor shall furnish a Materials Certificate in accordance with Article 1.06.07 for the fabric, posts, rails, and all fittings. A sample of PVC-coated fabric shall be submitted to the Department for testing the bond of the coating in accordance with the requirements of ASTM F668, Class 2b.

### **Construction Methods:**

**1. Shop Drawings:** Before fabricating any materials, the Contractor shall submit shop drawings to the Engineer for approval in accordance with Article 1.05.02. An individual, independently packaged set of shop drawings, with all details and documents necessary for fabrication and installation of the fence shall be prepared and submitted. The shop drawings shall be prepared in Customary U.S. units.

The packaged set of shop drawings for fencing at each site shall be submitted in an individual file in electronic portable document format (.pdf) with appropriate bookmarks and commenting enabled.

The shop drawings shall include complete details of all fence components. The drawings shall include, but not be limited to the following:

1. The project number, town.
2. A layout plan showing all posts and rail spacings, parapet grades and joint spacings. The Contractor shall submit measurements verifying joint spacings and parapet grades at a sufficient number of points to ensure posts are plumb to within 0.25% after installation.
3. All fence and anchorage details, including expansion devices.
4. Pre-qualified welding procedures.
5. Material specifications for all components. Including touch-up repair material.
6. Written Repair procedures
7. The packaged set shall include the contact information for fabricator and detailer. Contact information should include name and address of each company and the name of a contact person with phone number and email address for each.

The reviewed and stamped shop drawings and calculations will be returned to the Contractor directly with an appropriate stamp indicating the status of the Department's review. For submissions that do not require resubmission, the Contractor shall print and deliver to the Assistant District Engineer, the number of paper copies requested by the Engineer.

**2. Fabrication:** The chain link fence shall be accurately fabricated and installed in accordance with the plans, the approved shop drawings and as directed by the Engineer.

**3. Installation:** Posts that are embedded in circular concrete foundations shall be centered in pre-augured holes and held plumb. Unless otherwise directed by the Engineer, the holes shall be at least 3' deep with a diameter of 10". The post shall extend to a depth no closer than 4" from the bottom of the hole while maintaining the fence height shown on the plans. Posts shall be placed into the concrete such that concrete fills inside the post up to the top of the foundation to prevent moisture from condensing inside the post and filling the post below grade with water. The portion of foundation above grade and a portion at least 1' below grade shall be formed with a 10" inside diameter round tube. The tops of foundations shall be crowned to shed water. After the concrete has attained 3,000 psi, strip the forms to expose the concrete foundation. Posts shall have drain holes as shown on the plans to allow moisture to escape.

Where holes must be drilled in concrete walls or parapets to anchor or set posts, the Contractor shall submit to the Engineer his proposed method of drilling holes. Hole drilling methods shall not cause spalling, cracking, or other damage to the existing concrete. Those areas damaged by the Contractor shall be repaired by him in a manner suitable to the Engineer and at no expense to the State. The Contractor shall also indicate how he will prevent drillings and debris from falling to areas below or into adjacent traffic. The submittal shall also address dust control.

The Contractor shall layout and drill holes in accordance with the approved shop drawings. The holes shall be cleaned of all dirt, moisture, concrete dust and other foreign material. Prior to placing posts or anchors in the holes, the hole depths shall be checked for conformance with the approved shop drawings. The Contractor shall not proceed until authorized by the Engineer. When authorized by the Engineer, the dowels or fence posts may be installed in the holes.

Where posts are detailed on the plans to be mounted in drilled or preformed holes in the top of parapet or wall, they shall be held plumb until the non-shrink, non-staining grout has gained at least 2,000 psi compressive strength. Fence fabric shall not be installed until the grout has gained at least 3,000 psi compressive strength. Posts shall be placed into the grout such that grout fills inside the post up to the top of the wall or parapet to prevent moisture from condensing inside the post and filling the post below top of concrete with water.

Where posts are shown to be attached to base plates on the plans, the base plates shall be shop welded to the fence posts. Posts, to be installed on a sloping surface shall be cut to grade as required to ensure that the posts are plumb after installation. Posts shall be welded to the base plates and all burrs and sharp edges shall be removed before powder coating. All welding shall conform to the requirements of Sub article 6.03.03-3(c). Posts that are to be anchored to concrete

with a base plate shall be secured with stainless steel anchors as shown on the plans. The base plate shall be set on a 1/8" neoprene pad of the same dimensions as the base plate.

All rails shall be erected to produce a smooth, continuous appearance, with posts placed plumb and with all rails parallel to the grade along the top of parapets, curbs, walls or finished grade as shown on the plans. The fabric shall be stretched tightly between end posts and securely fastened with stretcher bar bands. The fabric shall be attached to the rails and line posts as shown on the plans. Dome caps shall be installed on top of all posts.

Coated fabric, fence posts, rails and fittings shall be handled with care so the coating is not damaged. Damage to the galvanized coating below the finish coating shall be repaired in accordance with ASTM A780 with two coats of galvanizing compound before repairing the finish coat. The final dry film thickness of the galvanizing compound shall be a minimum of 2 to 3 mils. Damage to coating shall be repaired as directed by the Engineer and in accordance with the approved repair procedures.

The preset anchorage where specified on the plans shall be installed perpendicular to the grade of the parapet. The preset anchorage shall be accurately positioned and restrained against movement during the placement of the concrete.

**Method of Measurement:** This work will be measured for payment by the number of linear feet of completed and accepted fence, measured horizontally from centerline to centerline of posts.

The following components will not be measured for payment but will be included in the general cost of the work: base plate assemblies, chemical anchoring material, non-shrink grout, molded pads, concrete foundations, aluminum angles, silicone joint sealer, expansion anchors and preset anchorage.

**Basis of Payment:** This work will be paid for at the contract unit price per linear foot for "8' Polyvinyl Chloride Chain Link Fence", complete and accepted in place, which price includes all materials, equipment, tools and work incidental thereto.

Pay Item	Pay Unit
8' Polyvinyl Chloride Chain Link Fence	l.f.

**ITEM #0915003A - TREE ROOT PROTECTION**

**9.15.05 - Basis of Payment:** *Delete the entire subarticle, and replace with the following:*

Payment for this work will be made at the contract unit price per cubic yard for "Tree Root Protection" complete in place, which price shall include all materials, equipment, tools, labor incidental to the installation, maintenance, replacement, removal and disposal of all material used.

## **ITEM # 0917010A – REPAIR GUIDERAIL**

**Description:** Work under this item shall consist of the repair of newly installed guiderail. It shall be repaired in the locations originally installed and fabricated in conformity with the lines, designations, dimensions, and details shown on the plans or as ordered by the Engineer.

**Materials:** The material for guiderail shall meet the requirements as specified within the original applicable contract items.

When repairing guiderail, the Contractor shall reuse any undamaged existing guiderail elements, timber rail, wire rope, appropriate posts, delineators, lap bolts, and other hardware within the project limits as approved by the Engineer to repair the guiderail. The Contractor shall use new materials when any components of the existing railing are damaged or missing and cannot be obtained from other guiderail systems being removed or converted within the Project limits.

**Construction Methods:** The repair of guiderail shall be in accordance with contraction methods as specified within the original applicable contract items.

Guiderail, including end anchors, which has been installed in final condition and accepted by the Engineer, shall be eligible for reimbursement for repairs subject to the conditions described below. If multiple runs are to be installed in a single stage as indicated in the contract documents, determination for reimbursement shall be made when all runs within the stage are complete and accepted as previously described. On projects without designated stages, guiderail installations must be complete and serving the intended function as determined by the Engineer.

When newly installed guiderail is damaged by public traffic, the following conditions must be satisfied prior to reimbursement for payment;

1. The damage must have been caused solely by the traveling public.
2. The contractor shall provide satisfactory evidence that such damage was caused by public traffic. Such as accident reports obtained from the Connecticut Department of Public Safety, police agencies or insurance companies; statements by reliable, unbiased eyewitnesses; or identification of the vehicle involved in the accident.
3. The contractor shall attempt to collect the costs from the person or persons responsible for the damage and provide documentation of those efforts to the satisfaction of the Engineer.
4. If such evidence cannot be obtained, the Engineer may determine that the damage was not caused by the Contractor and reimbursement for payment is warranted.



This repair provision does not relieve the Contractor of the requirements of Section 1.07, any other contractual requirements for maintenance and protection of traffic and final acceptance and relief of responsibility for the project.

The contractor shall remain responsible for the safety and integrity of the guiderail system for the duration of the project. In the event the guiderail is damaged, the Contractor shall provide sufficient cones, drums and other traffic control devices to provide safe passage by the public. When ordered by the Engineer, the Contractor shall furnish replacement parts and immediately repair the guiderail, but in no case more than 24 hours after notification from the Engineer. In non-emergency situations, the guiderail shall be repaired within 72 hours. The repaired guiderail or anchorages, when completed, shall conform to these specifications for a new system. The Contractor shall be responsible for the removal and the proper disposal of all damaged material and debris.

**Method of Measurement:** Guiderail damaged solely by the traveling public will be measured for payment. Damage caused by the Contractor's equipment or operations will not be measured for payment.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for repair of guiderail will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the contract.

**Basis of Payment:** Repair of guiderail will be paid for in accordance with Article 1.09.04 as required to restore the rail to its full working condition in conformance with these specifications for a new system. There will be no payment for maintenance and protection of traffic for work associated with this item unless, in the opinion of the Engineer, the sole purpose of the maintenance and protection of traffic is for repair of the guiderail.

Pay Item  
Repair Guiderail

Pay Unit  
est. (est.)

## **ITEM #0939001A – SWEEPING FOR DUST CONTROL**

*Work under this item shall conform to the requirements of Section 9.39.01 of the ConnDOT Standard Specifications, Form 818, supplemented and amended as follows:*

A sweeper shall always be on site. Each unit shall be consist of a self-contained, self-propelled truck-mounted sweeper with on-board dust suppression system (water) capable of removing heavy items such as asphalt and rock, wet material such as mud, and fine sand/silt, as well as agitate/dislodge stuck on material from the paved surface. The roadway shall be swept clean after every barrier shift before the location is opened to traffic. Curbs shall be swept clean to avoid solids entering the drainage systems. Construction access areas shall always be kept clean and free of dust and debris.

## **ITEM #0944000A – TOPSOIL**

### **Add the following paragraph to Section 9.44.03 - Construction Methods:**

In the event topsoil is taken from the project site, material shall be solarized to kill off any weed seeds. Prior to reuse, the stripped topsoil stockpile must reach and maintain a temperature of 140 degrees for three weeks prior to use and be verified by the Engineer. The method to achieve such requirement must be non-harmful to the environment. The Contractor shall submit to the Engineer a method of solarization and monitoring as well as any products used for approval. The Engineer shall review the stockpiles for compliance prior to use on the project.

### **Add the following paragraph to Section 9.44.04 – Basis of Payment:**

There will be no direct payment for the cost plastic sheeting, including any other tools, materials, and labor necessary for the solarization process, but shall be considered included in the general cost of the work.

## **ITEM #0944105A – STRUCTURAL SOIL**

### **Description:**

Work under this item shall consist of furnishing and placing a custom blend structural soil in the locations and to the depths specified on the plans, and in accordance with this specification. This structural soil is intended to provide a topsoil and subbase mixture suitable for the dual purposes of turf establishment and supporting occasional vehicular loads. The mixture will be used along the roadway where existing soil has rutted and/or eroded away and as directed by the Engineer and as shown in the typical sections, stage construction sheets and details.

### **Materials:**

The material for this item shall consist of a mixture of 50% topsoil and 50% processed aggregate base, by volume, prior to compaction.

1. **Topsoil:** Topsoil shall conform to the requirements of Article M.13.01 – Topsoil.
2. **Processed Aggregate Base:** Base material shall conform to the requirements of Article M.05.

### **Construction Methods:**

1. **Mixing of Materials:** Mechanically mix the topsoil and subbase components to produce a uniform, homogeneous mixture of structural soil, to the satisfaction of the engineer in the field. The topsoil and subbase components must be completely mixed such that there is no segregation. If the mixing is performed off-site, the contractor shall be responsible for ensuring the mixture does not separate during handling.
2. **Placement and Compaction:** The structural soil shall be placed on properly shaped and compacted processed aggregate base conforming to the requirements of Section 2.12, as shown on the plans.

The structural soil shall be placed in one lift, provided the final compacted depth is less than 8 inches. The depth specified on the plans to which the structural soil is to be placed is the final in-place depth after compaction. The soil shall be shaped to the lines and grades shown on the plans.

The structural soil shall be uniformly compacted to 90% of the dry density of the structural soil when tested in accordance with AASHTO T-180, Method D. **Do not compact the soil to a greater density** than this so that the soil's ability to support root growth will not be unnecessarily compromised.

3. **Preparation for Turf Establishment:** After placement and compaction of the structural soil, the top 0.5 to 1.0 inch shall be made friable and receptive to turf establishment by light raking or other means acceptable to the Engineer. All trucks and other equipment shall then be excluded from the soil area to prevent rutting and excessive compaction. The Contractor shall be responsible for restoring the line, grade and surface or all eroded areas with approved structural soil and maintaining the soil areas in acceptable condition until the completion of the construction work.

**Method of Measurement:**

This work will be measured by the actual number of cubic yards of Structural Soil placed and accepted. The measurement will be made in place after final grading and compaction.

**Basis of Payment:**

This work will be paid for at the contract unit price per cubic yard for “Structural Soil”. This price shall include all materials; all required mixing of materials; placing, shaping and lightly compacting the material; maintaining the soil surface; and all equipment, tools and labor incidental thereto.

<u>Pay Item</u>	<u>Unit</u>
Structural Soil	C.Y.

## **ITEM #0949017A - FURNISHING AND INSTALLING LARGE CALIPER TREES**

**Description:** This item shall consist of furnishing and installing 27 large caliper trees in accordance with the Contract, these specifications and the details shown on the plans.

**Materials:** The materials for this item shall conform to the requirements of Section 9.49 of the Standard Specification Form 818 and as amended in the contract, and with the latest edition of the American Standards for Nursery Stock (ANSI Standards sections 1-2). Trees provided under this item shall be of the species, quantity and sizes provided in this specification. Quantities are shown in the table below, where "Quantity of Trees" refers to the number of trees required for each caliper size increment shown.

Quantity of Trees	Caliper Size
6	3" - 4" Cal. B.B.
6	4" - 5" Cal. BB.
7	5" - 6" Cal. BB.
8	6" - 7" Cal. BB.

Tree species shall consist of the approved species below. The Contractor shall submit proposed tree species for each size in writing based on availability for approval. Any one species shall not consist of more than 25% of the total amount of large caliper trees being provided under this item. Any changes for substitution to the specified tree size or species shall be requested in writing.

Acer rubrum  
 Liquidambar styraciflua  
 Liriodendron tulipifera  
 Nyssa sylvatica  
 Platanus acerfolia  
 Quercus alba  
 Quercus coccinea  
 Quercus rubra  
 Tillia americana  
 Quercus palustris 'Pacific Brilliance'  
 Ulmus americana 'Princeton'

The list of plant material shall include quantity, size, and species name; and be accompanied by the Source of Supply per M.13.07-4 for each item. All trees must be approved by the Landscape Design Unit prior to shipment. Once delivered, All trees must be approved by the Landscape Design Unit prior to installation.

**Construction Methods:** All plant material under this item shall be spring dug. The Contractor is responsible for coordinating advanced procurement of spring dug material to be stockpiled over the summer for fall planting, if necessary. All plant material must be inspected and approved prior to delivery and is subject to subsequent inspection at any time before or after installation. The Contractor shall submit a Source of Supply per M.13.07-4 to initiate the inspection and approval of all material, and provide a member of the Landscape Design Unit no less than 48 hours advanced notice before scheduling an inspection.

Once all items have been approved by the Department, the Contractor shall coordinate planting layout with a member of the Landscape Design Unit for all plant material under this item. The Contractor must be represented during this layout and shall provide a member of the Landscape Design Unit no less than 48 hours advanced notice before layout of materials under this item can commence.

The Contractor shall plant this item in conformity to the requirements of Section 9.49 of the Standard Specification Form 818, and as amended by the Contract. All work shall be performed in accordance with the latest edition of the American National Standards Institute (ANSI) "American National Standard for Tree Care Operations," ANSI A300 (Part 6).

The Contractor shall be responsible for all materials necessary in the handling and installation of all plant material installed under this item. The Contractor shall perform all work under this item within the overall project schedule and in coordination of any concurrent construction work being performed. The Contractor shall be responsible for performing this work within all environmental constraints and any unforeseen field conditions, at no additional cost to the State.

The work shall include all other accepted horticultural practices, performed as necessary for the duration of the Contract, to maintain new plants in a healthy, vigorous growing condition and ensure their successful long-term establishment.

**Method of Measurement:** Payment under this item will be at the Contract lump sum price for work completed and accepted in place.

**Basis of Payment:** Payment for this work will be made at the contract unit price for "Furnishing and Installing Large Caliper Trees", completed in place; which price shall include all materials, equipment, tools, and labor incidental thereto.

Pay Item  
Furnishing and Installing  
Large Caliper Trees

Pay Unit  
l.s.

## **ITEM #0949111A - PROTECTIVE FENCING**

**Description:** This item shall consist of protecting and maintaining the existing trees and shrubs located within the limits indicated on the plans or as directed by the Engineer. Protection and maintenance work shall include furnishing and installing Protective Fencing, as well as removal after all work is completed at the end of the contract or as directed by the Engineer.

**Materials:** Protective fencing shall consist of a 4 feet min. high, orange safety delineator fence. Steel posts shall consist of 7 to 8 feet long posts of U-channel, high carbon steel, drive type, with spade anchors, or approved equal.

### **Construction Methods:**

**1. General:** All tree protection and maintenance work shall be performed in compliance with the International Society of Arboriculture best practices and the American National Standards Institute (ANSI) Publication: ANSI Z 133.1 "Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees, and for Cutting Brush."

The Contractor and the Department's representative, including but not limited to the Engineer and Landscape Designer, shall meet on the site to discuss all aspects of tree protection and maintenance prior to the commencement of any work, including clearing and grubbing operations. This meeting will include the field inspection of the staked limit of grading to review the existing vegetation and to identify any field modifications to the work.

No excavated material or construction materials are to be stockpiled within the drip line of any tree. Tree root systems shall be protected from smothering, flooding, erosion, and excessive wetting resulting from dewatering operations; and from run-off, spillage, and drainage of solutions containing materials which would be deleterious to tree roots. Parking and vehicular traffic will not be permitted within the tree's drip lines. Foot traffic over tree roots shall be restricted to prevent excessive compaction of soil over root systems.

**2. Protective fencing:** The Contractor shall install protective fencing within the limits indicated on the plans or as directed by the Engineer. Posts shall be set 8 to 10 feet on centers into the ground to support the fence material firmly. The protective fencing shall be maintained throughout the duration of the project by resetting or replacing any and all parts of the protective fencing as needed. In areas where construction activities require the use of the space within the protective fencing, the protective fencing may be shifted to allow for the work to be completed. Immediately following the completion of the work which required the shifting of the protective fencing, the fencing shall be re-set to its original location or to a location directed by the Engineer. In all cases, use of areas within the protected area shall be kept to a minimum and only accessed when absolutely necessary.

**Measurement:** This work shall be measured by the actual number of linear feet of "Protective Fencing" installed and accepted. The fence shall be measured once at the time of installation. No additional payment will be made for temporary shifting, reinstallation, repair or replacement of the fence. Measurement shall be made along the centerline of the fence.



**Payment:** Payment for this work will be made at the contract unit price per linear foot for "Protective Fencing" complete in place, which price shall include all materials, equipment, tools, labor incidental to the installation, maintenance, replacement, removal and disposal of fence.

<u>Payment Item</u>	<u>Pay Unit</u>
Protective Fencing	l. f.

## **ITEM #0949432.11A – PNEUMATIC ROOT EXCAVATION**

**Description:** This work shall consist of providing pneumatic root excavation for the purpose of exposing tree roots for visual inspection while preserving the primary root structure of the tree. Tree roots are to be aerated and exposed through the use of compressed air technology. Tree root aeration is to occur in locations as shown on the plans and/or as directed by the Engineer.

### **Materials:**

Pneumatic excavation equipment: The Contractor shall provide pneumatic excavation system designed for the use of excavating soil surrounding tree root systems while preventing damage to tree roots, subsurface utilities and other non-soil objects.

All pneumatic excavation equipment must be capable of performing within the following ranges:

Rated Operating Pressure:	90 – 102.5 psi
Air Stream Velocity at Cutting Head:	1800 – 2175 fps
Air Displacement:	25 – 225 cfm

Different nozzles, classified by varying air displacement volume(s), may be used for excavation. Nozzles are to be selected based upon the following criteria:

- Suitability for performing excavation around tree root systems
- Effectiveness at removing existing soils
- Ability to minimize the amount of airborne material
- Compatibility with selected air compression system (based on psi and cfm)

**Approved Manufacturers:** The air excavation tool shall be either the “Air-Spade” as manufactured by Division of Guardair Corporation 47 Veterans Drive Chicopee, MA 01022 (800)-482-7324, or Supersonic Air Knife as manufactured by Easy Use Air Tools, Inc. Allison Park, Pa (866) 328-5723 or approved equal.

Air compressor: Air compressor shall be sized appropriately to provide adequate power to the pneumatic excavation equipment in accordance with manufacturer recommendations.

Vacuum equipment: The Contractor shall supply vacuum equipment of appropriate size and capacity capable of extracting all material produced during excavation.

Containment structure: The Contractor shall provide structure(s) or barrier(s) with the purpose of containing airborne debris created by the pneumatic excavation equipment. The chosen structure(s) or barrier(s) shall provide adequate coverage, as to prevent the movement of airborne soil, rocks or other objects onto adjacent roadways, sidewalks, or beyond the extent of the designated work zone. Methods shall be submitted to the Engineer in writing for approval.

Backfill: Shall meet the specifications of planting soil as specified in section M.13.01-2 of form 818.

Burlap: Burlap shall be untreated and made from either jute or kenaf. Burlap shall be free from cuts tears, uneven weaving and contaminants. Burlap material shall be able to absorb and retain water.

Polyethylene film: Fill shall conform to the material requirements of AASHTO M171 (ASTM C171) for Polyethylene Film: White Opaque. Fill shall be wound on rolls to facilitate in wrapping of burlap and tree roots.

Water: The contractor shall provide a water source on-site for the purposes of dust control and root preservation.

### **Construction:**

Pneumatic Root Excavation is to be performed by a Connecticut Licensed Arborist, Certified Arborist (International Society of Arboriculture (ISA)), or approved equal. The arborist's certification shall be submitted at least two weeks prior to the commencement of pneumatic root excavation.

Prior to any excavation, water is to be applied to the area staked to receive pneumatic excavation approximately 12 hours prior to the work in order to minimize dust. For excavations that exceed the depth of damp soil, soil shall be rewet as necessary to keep soil moisture near field capacity.

Excavation shall be performed with the use of an approved pneumatic excavation tool, and hand work where required. All excavation activity is to be carefully executed and roots greater than one half inch (1/2") diameter are to remain undamaged. If roots greater than one half inch (1/2") are damaged during excavation, the arborist shall evaluate the roots and determine the need for pruning at no additional cost.

Areas shown on the plans or directed to receive pneumatic root excavation are to be staked out by the contractor. No work shall commence until the staked area has been approved by the Engineer.

The Contractor shall provide an air compressor for operating the pneumatic excavation equipment based on the recommendations of the pneumatic excavation equipment manufacturer and as specified above. All pneumatic excavation shall be as minimal as possible in width and depth, thereby minimizing the impact on tree roots and other areas as noted on the plans. Different nozzles may be used on the air spade to expedite the work or minimize the amount of airborne material, while still protecting tree roots.

Depth shall be as indicated on Contract Drawings or as directed by the Engineer. Depths greater than 18" may require removal of soil by hand shovel, or other appropriate means. The Contractor shall use containment structure(s) in areas designated for pneumatic excavation in order to avoid soil, rocks and other objects from being scattered and inadvertently damaging private or public property. Plans for a containment structure(s) shall be submitted to the Engineer for approval two weeks prior to any excavation activity. In addition, operators/arborists must be equipped with adequate protective clothing and gear, in accordance with manufacturer's recommendations.

All tree roots exposed by the pneumatic or hand excavation operations must be kept constantly moist within 4 hours of exposure. Burlap is be saturated with water, securely wrapped around exposed roots and then covered with white polyethylene film. The covered roots are to be checked daily for a minimum of 7 days or until backfill is complete as directed by the Engineer. If the burlap wrapping is dry upon inspection the contractor shall re-saturate the burlap as needed.

The contractor shall use vacuum equipment in order to remove the soil from the excavation area produced by the pneumatic root excavation. The vacuum equipment should operate simultaneously with the pneumatic excavation equipment, in a manner that allows dislodged soil to be picked up from the excavation area, and so the exposed roots can be observed and not damaged by the ongoing operation. All excavated soils, rocks and other material/objects shall be removed at the end of the excavation.

**Measurement:**

This work shall be measured by the actual number of square feet of "Pneumatic Root Excavation" preformed and accepted.

**Basis of Payment:**

Payment for this work will be made at the contract unit price per square foot for "Pneumatic Root Excavation" complete in place, which price shall include all materials, equipment, tools, and labor incidental thereto.

Payment Item

Pay Unit

Pneumatic Root Excavation

s.f.

## **ITEM #0949432A - ROOT PRUNING**

**Description:** This item shall consist of protecting and maintaining the existing trees and shrubs located within the limits indicated on the plans. Protection and maintenance work shall include Root Pruning.

### **Construction Methods:**

**1. General:** All tree protection and maintenance work shall be performed in compliance with the National Arborist Association and the American National Standards Institute (ANSI) Publication: ANSI Z 133.1 "Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees, and for Cutting Brush."

The Contractor, the Department's representative, the Engineer, and the Landscape Designer shall meet on the site to discuss all aspects of tree protection and maintenance prior to the commencement of any work, including clearing and grubbing operations. This meeting will include the field inspection of the staked limit of grading to review the existing vegetation and to identify any field modifications to the work.

No excavated material or construction materials are to be stockpiled within the drip line of any tree. Tree root systems shall be protected from smothering, flooding, erosion, and excessive wetting resulting from dewatering operations; and from run-off, spillage, and drainage of solutions containing materials which would be deleterious to tree roots. Parking and vehicular traffic will not be permitted within the tree's drip lines. Foot traffic over tree roots shall be restricted to prevent excessive compaction of soil over root systems.

**2. Root Pruning:** The Contractor shall operate vibratory knife, or rock saw, or other equipment which provides for a clean, smooth cut saw along the limits shown on and plans and marked out in the field and as directed by the Engineer. The activity involves clean cutting tree roots to minimize the construction activity shock to the affected trees. Unless otherwise instructed by the Engineer, root pruning shall be performed to a depth 6" greater than the anticipated excavation in proximity of the tree roots. The trench shall be immediately backfilled with organic soil. This root pruning operation shall occur prior to protective fencing and clearing and grubbing unless otherwise instructed by the Engineer.

**Measurement:** This work shall be measured by the actual number of linear feet of "Root Pruning" completed and accepted.

**Payment:** Payment for this work will be made at the contract unit price per linear foot for "Root Pruning" complete in place, which price shall include all materials, including organic soil backfill, equipment, tools, and labor incidental thereto.

Pay Item  
Root Pruning

Pay Unit  
1 .f.

**ITEM #0950021A – LOW GROW TURF**

**Description:** The work included in this item shall consist of providing an accepted stand of grass by furnishing and placing seed as shown on the plans or as directed by the Engineer.

**Materials:** The materials for this work shall conform to the requirements of Section 9.50 of Standard Specification Form 818. The following mix shall be used for this item:

**Turf Seed Mix:**

In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed below. Other proposed mixtures and/or varieties must be approved by the ConnDOT Landscape Design office.

<b><u>Proportion (Percent)</u></b>	<b><u>Species Common name</u></b>	<b><u>Scientific name</u></b>
30%	Slender Creeping Red Fescue See approved varieties*	Festuca rubra L. spp. trichophylla
30%	Strong Creeping Red Fescue See approved varieties*	Festuca rubra L. spp. rubra
35%	Hard Fescue See approved varieties*	Festuca brevipila
5%	White Clover	Trifolium repens

**Approved Varieties:**

**Slender Creeping Red Fescue:** SeaMist, Seabreeze GT, Dawson, Sprinkler, SeaLink

**Strong Creeping Red Fescue:** Xeric, Shademaster III, Jasper II, Garnet, Chantilly

**Hard Fescue:** Blueray, Predator, Firefly, Spartan II, Eureka II, Henry

**Trifolium repens:** Pipolina, Pirouette

**Construction Methods:** Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 250 lbs. per acre. The seed shall be mulched in accordance with Article 9.50.03.

**Maintenance Requirements:** As part of this item, the Contractor shall mow all slopes 4:1 or less (flatter) and level turf established (seeded) areas to a height of 4 in (100 mm) when the grass growth attains a height of 6 inches, a minimum of three times per year for the duration of the

Contract or as directed by the Engineer. Additional mows to those included in the specification and as directed by the Engineer shall be paid for as extra work.

**Method of Measurement:** This work will be measured for payment by the number of square yards of surface area of accepted established grasses as specified or by the number of square yards of surface area of seeding actually covered and as specified.

**Basis of Payment:** This work will be paid for at the contract unit price per square yard for “Low Grow Turf” which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

<b><u>Pav Item</u></b>	<b><u>Pav Unit</u></b>
Turf Establishment - Lawn	s.y.

**ITEM #0950040A – CONSERVATION SEEDING FOR SLOPES**

**Description:** The work included in this item shall consist of providing an accepted stand of established meadow grasses by furnishing and placing seed as shown on the plans or as directed by the Engineer.

**Materials:** The materials for this work shall conform to the requirements of Section 9.50 of Standard Specification Form 818. The following mix shall be used for this item:

**Conservation Seed Mix:**

In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed. Other proposed mixtures must be approved by the ConnDOT Landscape Design Unit. All seed tags shall be submitted to the ConnDOT Landscape Design Unit.

<b><u>Percentage</u></b>	<b><u>Common Name</u></b>	<b><u>Scientific Name</u></b>
25	Creeping Red Fescue	Festuca rubra
15	Little Bluestem	Schizachyrium scoparium
15	Black Eyed Susan	Rudbeckia hirta
10	Kentucky Blue Grass	Poa pratensis
10	Meadow Goldenrod	Solidago canadensis
5	Indian Grass	Sorghastrum nutans
5	Purple Coneflower	Echinacea purpurea
5	Butterfly Weed	Asclepias tuberosa
5	New England Aster	Aster novae-angliae
5	Common Milkweed	Asclepias syriaca

**Construction Methods:** Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. The ConnDOT Landscape Design Unit shall be notified of all seeding schedules. Preparation of a clean weed free seed bed shall be provided. Areas to receive seeding shall be friable and receptive to seeding. In no event will seeding be permitted on hard or crusted soil surfaces. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 35 lbs. per acre (hectare). The mix may be applied by hydroseeding, by mechanical spreader, or on small sites by hand. Lightly rake, or roll to ensure proper seed to soil contact. Seeding dates are from March 15<sup>th</sup> – June 1<sup>st</sup>. If seeding outside of these dates is required, re-seeding the following season during these dates may be required to fully establish the seed mix as directed by the Engineer. If re-seeding occurs, all construction methods shall be followed, including the removal of any weed species in the area to be re-seeded. The contractor may be directed by the Engineer to soak, scarify or perform other seed germination enhancement treatments. Fertilization is not recommended, unless topsoil testing indicates. An application of Plateau (imazapic) at a rate of .1 lb. per acre may be required right



after seeding, or as directed by the Engineer. The seed shall be mulched in accordance with Article 9.50.03.

**Method of Measurement:** This work will be measured for payment by the number of Square Yards of surface area of accepted established grasses as specified per authorized seeding application.

**Basis of Payment:** This work will be paid for at the contract unit price per Square Yard for “Conservation Seeding for Slopes,” which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

<u>Pay Item</u>	<u>Pay Unit</u>
Conservation Seeding for Slopes	s.y.

## **ITEM #0950043A - WETLAND GRASS ESTABLISHMENT**

**Description:** The work included in this item shall consist of providing an accepted stand of established wetland grasses by furnishing and placing seed as shown on the plans, permits, or as directed by the Engineer within the Wetland Mitigation Area(s) or other areas when required.

**Materials:** All wetland grass mixture sources shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland in order to preserve and enhance the diversity of native wetland grass species.

The placement of fertilizer, mulch or bio-degradable erosion control matting will not be allowed within any wetland area.

All wetland seed mixture sources shall be approved by the Engineer prior to purchase.

Three (3) qualified wetland seed mixtures are as follows:

1. **New England Wet Mix (Wetland Seed Mix)**, New England Wetland Plants, Inc. 820 West Street Amherst, MA 01002, or equal. Rate shall be 1 pound PLS per 2,500 sq. ft.
2. **OBL Wetland Mix**, Ernst Conservation Seeds, Inc. 8884 Mercer Pike, Meadville, PA 16335, or equal. Rate shall be 1 pound PLS per 2,000 sq. ft.
3. **Vermont Wetland Shrub**, Vermont Wetland Plant Supply, LLC, P.O. Box 153, Orwell, VT 05760, or equal. Rate shall be 1 pound PLS per 2,420 sq. ft.

All seed mixtures must be reviewed and approved by the Engineer prior to application. All seed Materials Certificates must have seed mixtures that shall not include any invasive species pursuant to Connecticut General Statute Sec. 22a-381d, or any State Threatened or State Endangered species known pursuant to Connecticut General Statute Sec. 26-303 which would be a violation of the Connecticut Endangered Species Act. The seed tags from the bags are to be removed by the Engineer upon delivery and attached to the Materials Certificate. No seeding shall occur if the requirements are not met.

All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture.

**Construction Methods:** Construction methods shall be those established as agronomically acceptable and feasible and approved by the Engineer.

Wetland grass establishment seeding for Wetland Mitigation Site(s): Seeding shall occur during the fall season immediately following construction of the wetland site(s). Fall seeding must occur from August 15<sup>th</sup> to October 31<sup>th</sup>.

Wetland grass establishment seeding for areas other than the Wetland Mitigation Site(s), when required: Seeding dates shall adhere to Form 818 Section 9.50 – Turf Establishment.

Seeding shall be applied to wetland areas that will not be routinely inundated. If seed is purchased in bulk rather than by PLS, the rate of application must be adjusted to meet the required PLS seeding rate. This seeding rate shall be increased by the appropriate percentage based on the information provided on the seed tags at delivery, as determined by the following formula:

$$(\text{Germination Percentage} \times \text{Purity Percentage})/100 = \text{Percentage PLS}$$

The Engineer shall verify that the seed is applied at a rate that will allow for 100% PLS.

**Method of Measurement:** This work will be measured for payment by the number of square feet of surface area of established wetland seed mixture, planted, and accepted as specified or by the number of square feet of surface area of seeding actually covered as specified.

**Basis of Payment:** This work shall be paid at the Contract unit price per square foot for “Wetland Grass Establishment,” which price shall include all materials maintenance, equipment, tools, labor, transportation, operations and all work incidental thereto. Partial payment of up to 50% may be made for work completed, but not accepted. Full payment shall not be made until the area has been accepted by the Engineer.

Pay Item	Pay Unit
Wetland Grass Establishment	s.f.

## **ITEM #0950106A – TREE BARRIER**

**Description:** This item shall consist of applying wood framing around the trunk or trunks of the tree from the ground level to the height of 6 feet as indicated on the plans or as directed by the Engineer, all in accordance with these Specifications.

**Materials: Tree Barrier:** Wood framing shall consist of nominal lumber 6 feet in length; the width and thickness may vary from 2" x 2" to 2" x 6", depending on trunk diameter. Binding material shall consist of single strand 9-gauge wire or 1/2-inch strapping.

### **Construction Methods:**

**1-General:** All tree protection and maintenance work shall be performed in compliance with the International Society of Arboriculture best practices and the American National Standards Institute (ANSI) Publication. ANSI Z 133.1 "Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees, and for Cutting Brush."

The Contractor, the Department's representative, the Engineer, and the Landscape Designer shall meet on the site to discuss all aspects of tree protection and maintenance prior to the commencement of any work, including clearing and grubbing operations. This meeting will include the field inspection of the staked limit of grading to review the existing vegetation and to identify any field modifications to the work.

No excavated material or construction materials are to be stockpiled within the drip line of any tree. Tree root systems shall be protected from smothering, flooding, erosion, and excessive wetting resulting from dewatering operations; and from run-off, spillage, and drainage of solutions containing materials which would be deleterious to tree roots. Parking and vehicular traffic shall not be permitted within the tree's drip lines

**2-Tree Barrier:** The wood framing shall be placed around the trunk in sufficient quantity to protect the trunk from mechanical damage. Wood framing members shall not be spaced greater than 4 inches apart. The binding material shall be tight to prevent the wood from moving. The binding material shall not come in contact with the trunk or any portion of the tree. Under no circumstance shall nails or any other type of fastener enter the tree. The wood framing shall be removed and legally disposed of when all mechanical work within the surrounding area has been completed.

**Measurement:** This work shall be measured by the number of feet of "Tree Barrier" installed and accepted. The barrier shall be measured once at the time of installation. No additional payment will be made for the adjustment, reinstallation, repair or replacement of the barrier. Measurement shall be made along the centerline of the barrier.

**Payment:** Payment for this work will be made at the contract unit price per foot for "Tree Barrier" complete in place, which price shall include all materials, equipment, tools, labor incidental to the installation, maintenance, replacement, removal and disposal of barrier.

Pay Item  
Tree Barrier

Pay Unit  
l.f.

**ITEM #0952001A – SELECTIVE CLEARING AND THINNING (LUMP SUM)**

Section 9.52 is amended as follows:

**Article 9.52.03 – Construction Methods is supplemented as follows:**

Where directed by the Engineer, materials to be cut, trimmed or removed shall be those items that restrict visibility to an extruded aluminum sign to less than 800 ft. The entire sign will be visible for 800 ft measured from the center of the right-travel lane approaching the sign, as viewed from a 3.5 ft height above the roadway.

Where directed by the Engineer, materials to be cut, trimmed, or removed shall be those items that restrict visibility to a sheet aluminum sign to less than 200 ft. The entire sign will be visible for 200 ft measured from the center of the right travel lane approaching the sign, as viewed from 3.5 ft height above the roadway.

This work shall be completed prior to installing the sign panel onto the vertical supports.

Where directed by the Engineer, materials to be cut, trimmed or removed shall be those items that interfere with the temporary signalization to be installed under Item No. 1118101A.

All trees scheduled to be removed shall be visibly marked or flagged by the Contractor at least seven days prior to the cutting of such trees.

The Engineer will inspect the identified trees and verify the limits of clearing and thinning prior to the Contractor proceeding with his cutting operation.

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Selective Clearing and Thinning	LS (Lump Sum)

## **ITEM #0952049A – SELECTIVE CLEARING AND THINNING**

**Description:** This work shall consist of cutting, trimming, and the removal of trees, limbs, stumps, brush, rubbish and objectionable material as shown on the plans or as directed by the engineer. The purpose of this item is to provide increased visibility through designated areas as shown on the plans, to remove any hazardous overhead limbs from the corridor, and to provide a neat, easily maintained perimeter along the facility.

**Materials:** The contractor responsible for furnishing the service has complete responsibility for the tools, equipment and labor being used and will furnish all fuel, maintenance and repair for that equipment. Hook and blade pruning tools shall be used rather than anvil-type pruning tools. Climbing spurs shall not be used for climbing trees which will remain. Equipment and work practices that damage bark and/or cambium shall not be used.

### **Construction Methods:**

The identification of vegetation to be removed must be verified in the field prior to clearing and grubbing, as well as after the completion of final grading. All non-invasive vegetation under 4" Caliper shall be fully removed from the areas shown on the plans and as directed by the Engineer. Vegetation removed shall be cut flush with the ground surface or pulled. Flush cut brush and trees shall not be more than 2 inches above the ground line. Vegetation larger than 4" in Caliper shall have branches 6" in diameter or less that are 15' or lower on the trunk pruned as directed. All corrective pruning shall conform to the National Arborists Association Pruning Standards. All work shall be done in a neat and orderly manner so as not to damage native vegetation. Vegetation which is damaged during removal of specified vegetation shall also be removed at no additional cost to the State. This work shall be performed by use of hand tools such as chain saw, loppers, and pole saws as to not damage the ground plane.

**1 - Quality Assurance:** Contractors performing tree trimming shall be licensed arborists qualified to perform arboriculture within the state of Connecticut under Connecticut General Statutes – Section 23-61b, Licensing for Arboriculture; examination; fees, renewal, suspension and revocation.

Tree trimming shall be performed to meet the latest definitions and standards identified in the American National Standards Institute (ANSI) A300 Standards described in the section of Tree Care Operations – Tree, Shrub and other Woody Plant Maintenance - Standard Practices (Pruning).

**2 - Coordination and Scheduling:** Coordinate tree pruning and trimming with Clearing and Grubbing, Special Provision #952051A Control and Removal of Invasive Vegetation, as well as any other construction; including other work relating to trees as shown on the Landscape Design Sheets and specified within any special provisions.

**3 - Pruning Cuts:** Thinning cuts shall be the preferred type of cut. A thinning cut shall consist of the removal of a lateral branch at its point of origin or the shortening of a branch or stem by cutting to a lateral large enough to assume the terminal role.

When removing a lateral branch at its point of origin on the trunk or parent limb, the final cut shall be made in branch tissue close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub. When removing a leader or length of branch, the angle of the cut should bisect the angle between the branch bark ridge and an imaginary line perpendicular to the leader being removed.

When removing a dead branch, the final cut shall be made just outside the collar of live tissue. If the collar has grown out along the branch stub, only the dead stub should be removed. The live collar shall remain intact and uninjured.

To prevent damage to the parent limb when removing a branch with a narrow branch attachment, the final cut should be made from the bottom of the branch up. Cut limbs shall be removed from the crown upon completion of the pruning, or at times when the tree will be left unattended or at the end of the work day.

**4 - Wound Treatment:** Wound dressings and tree paints shall not be used.

When repairing bark wounds, only damaged or loose bark shall be removed, disturbing a minimal amount of live tissue.

Cavities shall not be filled or treated if the boundary zones would be disturbed.

**5 - Tree Pruning & Trimming:** Pruning cuts shall be made in accordance with Pruning Cut above.

Tree branches shall be removed in such a manner so as not to cause damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting or tearing of the bark. Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

**Method of Measurement:** This item will be paid for on a Square Yard (s.y.) basis which will include the inspection of approximate measured areas shown on the plans, and of tree pruning and trimming completed along the trail corridor and other disturbed areas.

**Basis of Payment:** This work will be paid for at the contract Square Yard (s.y.) price for 'Selective Clearing and Thinning,' complete in place, which price shall include all materials, tools, equipment and labor incidental thereto, also all cleaning up of the site upon completion of the work.

**Pay Item**

**Pay Unit**

Selective Clearing and Thinning

s.y.

## **ITEM #0952051A – CONTROL AND REMOVAL OF INVASIVE VEGETATION**

**Description:** This work shall include the development and implementation of an Invasive Vegetation Removal Plan (IVRP) to outline the materials, labor, and equipment the Contractor plans to use for the complete eradication and treatment of the invasive and unwanted vegetation shown on the plans and as confirmed in the field. The work shall also include the identification, excavation, removal, and off-Site disposal of the invasive and unwanted vegetation as indicated on the plan sheets or as directed by the Engineer or a representative of the Landscape Design Unit.

All invasive vegetation listed on the following websites will be subject to eradication:

- Connecticut Invasive Plant Working Group (CIPWG) Invasive Plants Council ([http://cipwg.uconn.edu/invasive\\_plant\\_list/](http://cipwg.uconn.edu/invasive_plant_list/))
- US Army Corps of Engineers (ACOE) New England District Compensatory Mitigation Guidance Appendix K ([http://www.nae.usace.army.mil/portals/74/docs/regulatory/Mitigation/2016\\_New\\_England\\_Compensatory\\_Mitigation\\_Guidance.pdf](http://www.nae.usace.army.mil/portals/74/docs/regulatory/Mitigation/2016_New_England_Compensatory_Mitigation_Guidance.pdf))

All non-invasive, unwanted vegetation within the limits of Control and Removal of Invasive Vegetation shown on the plans and as confirmed in the field shall also be subject to removal under this item unless otherwise specified. A select few specimen trees within these areas will be designated for preservation.

All vegetation designated for removal shall be eradicated in its entirety in accordance with the IVRP submitted by the Contractor and approved by the Engineer. Certain situations may require the full and complete mechanical excavation of vegetation including its entire root system. The use of herbicides will not be permitted between the dates of October 1 and May 31.

**Materials:** All herbicides shall be registered for the species being treated and shall be formulated as applicable for target-species foliar treatment, cut surface, or injection applications. Where work in or immediately adjacent to wetlands is necessary, the product label(s) for any chemical/adjuvant formulation applied must indicate that the formulation is approved for aquatic environments.

### **Construction Methods:**

**1. IVRP:** Prior to any ground disturbance within the Project limits, the Contractor shall submit an IVRP to the Engineer for review and approval. Within 30 days of receipt of the submittal, the Engineer will notify the Contractor whether the IVRP is approved, rejected or requires modifications by the Contractor. If any part of the plan is not approved, the Contractor shall promptly make any necessary changes and re-submit the entire plan for approval. The entire plan must be approved in writing prior to beginning any work on Site. In all cases, mechanical means shall be considered before the use of herbicides. If mechanical means is neither feasible nor recommended, an explanation must be provided in the IVRP. All removal methods shall prevent the spread of seeds – no mowing or “Brush Hog” equipment will be allowed. The approved methods must be capable of total removal and eradication of all identified vegetation in the designated areas throughout the Contract and the 2-Year Follow Up Treatment period.

The IVRP shall include a schedule and outline with the following information:



- 1) The Contractor's methods of determining removal limits, including:
  - a. Stake out the limits prior to the initial treatment
  - b. Maintain a record of the staked limits throughout the life of the Contract
- 2) Identification of the type(s) of species present within the total removal limits. Each individual invasive species shall be recorded separately. Non-invasive vegetation may be grouped together and listed as 'non-invasive vegetation'
- 3) A marked up plan sheet outlining the removal limits and identifying the types of invasive species present within those limits and total square yards of proposed removal, including non-invasive vegetation
- 4) For each species present on-Site (non-invasive vegetation may be grouped together, listed as 'non-invasive vegetation'), the following shall be described:
  - a. Methods to eradicate specific species for the life of the Contract (e.g. mechanical, herbicide, etc.) shall include any initial, intermediate and 2-Year Plant Establishment Period Treatment eradication methods for each plant species
  - b. Types and concentrations of any herbicides to be used, including any adjuvants, SDS sheets, types of tools or machinery to be used
  - c. Schedules showing proposed treatment dates and eradication methods for the initial, intermediate, and 2-Year Plant Establishment Period Treatments. This schedule must take into consideration stage construction, the time period required between herbicide application, and the physical removal of the target species wherever such methodology is employed
- 5) All invasive species and unwanted vegetation removed under this item on the contract plans are considered controlled materials and are to be taken off-Site to an approved disposal facility. For disposal methods:
  - a. Provide address of location, current permits / letters from the town authorizing such activity and a Site map (complete with regulated areas)
  - b. Wood chips from invasive species are not allowed to be stockpiled or reused on-Site
  - c. Wood chipping on-Site will be allowed if temporarily stored in a properly contained enclosure and removed at the end of the treatment cycle
  - d. Invasive plants shall not be buried on-Site
- 6) Proof of CT DEEP licensure for herbicide application
- 7) A description of safety equipment required
- 8) Procedures for handling chemical spills

Where certain species of invasive vegetation are present and identified on the plan sheets, permits, or as identified in the field by the Engineer, the removal via bulk mechanical excavation of such vegetation and the underlying soils may be required as directed. The approved method must be capable of the removal of all soil to a depth where invasive plant material and root system is no longer evident, or as directed by the Engineer.

Whether the Contractor's method of removal is by mechanical excavation or cutting and spraying of herbicides, invasive species must be removed separately from clearing and grubbing operations and disposed at an approved location as described in the Contractor's IVRP.

Any unwanted vegetation designated for removal as indicated on the plan sheets, permits or as directed by the Engineer or member of the Landscape Design Unit which is not considered invasive, but removed concurrently with invasive vegetation, and/or with the same machinery, shall be

considered contaminated and disposed at an approved location as described in the Contractor's IVRP.

No equipment or vehicles other than that required to complete the work will be permitted in the areas designated for invasive and unwanted vegetation removal. Any equipment used to process invasive vegetation, such as chippers and transport vehicles, must be cleaned prior to further use.

Any unwanted vegetation and/or invasive species control and removal work performed throughout the duration of the Contract that causes damage or soil disturbance shall be repaired at the Contractor's expense within 7 days. It is the Contractor's responsibility to identify additional areas of concern for invasive vegetation within the limits of the Project, notify the Engineer, and to amend the IVRP. The Contractor shall be responsible to identify invasive vegetation at all times of the year and to prepare a plan for its eradication without assistance.

All treatments, with the exception of an initial mechanical excavation of invasive species, will not be allowed outside of the optimal growing season between the dates of October 1 and May 31.

Herbicide applications will not be permitted during any rain event or during windy conditions. Broadcast or uncontrolled spray application will not be permitted and care must be taken to avoid contacting non-target native species. If any non-target native species to remain within the Project limits are inadvertently treated with herbicide and perish, the Contractor will be responsible to replace in-kind species at no cost to the State.

Remove all twining vines in treetops to the greatest extent possible without damaging the branches of the supporting desired vegetation. Cut and remove vines overtopping tree canopies to the maximum extent practical. Climbing spikes will not be permitted for aerial work.

The Contractor shall also:

- 1) Maintain the labels for herbicides being used in his/her possession
- 2) Conduct all herbicide formulations and applications, including the addition of appropriate surfactants and other adjuvants, in strict conformance with the manufacturer's recommendation and per requirements of regulatory agencies
- 3) Maintain a written record of herbicide application, including the formulation, concentration, area treated, and date for each application. The records are to be provided by the commercial applicator and submitted to the Engineer following each treatment

Flush cut brush and trees shall not be more than 2 inches above the ground line. Prune out any branches on non-treatment plants that are damaged during removal of vegetation. All corrective pruning shall conform to the National Arborists Association Pruning Standards.

Wherever removal operations result in exposed soils, disturbed areas shall be vegetatively stabilized with the appropriate seed mix as noted on the plan sheets, or as directed by the Engineer or member of the Landscape Design Unit; and protected with hay, cellulos fiber mulch, or erosion control matting.

Once the IVRP is approved, a field review shall be scheduled for the Contractor and Engineer to review the limits of invasive species and unwanted vegetation removal (surveyed and flagged by the Contractor prior to the meeting), the specific species required to be removed, and the Contractor's submitted invasive species removal plan. At this time, the Engineer or member of the

Landscape Design Unit will identify all unwanted vegetation to be removed under this item on the contract plans, and may identify additional invasive species or designate additional areas for removal that are not included with the Contractor's submitted IVRP. Also at this time, appropriate contract items for vegetative stabilization of disturbed areas will be identified for each individual area designated for invasive and unwanted vegetation removal which may consist of, but not limited to, "Turf Establishment," "Wetland Grass Establishment," or "Conservation Seeding for Slopes," and paid for under their respective items.

If changes are required to the approved IVRP during the life of the Contract, these changes shall be documented by the Contractor and resubmitted to the Engineer for review and approval a minimum of 10 days prior to beginning of the additional work associated with the change. The Contractor shall provide a 10 day work notice to the Engineer prior to proceeding with each treatment.

**2. Treatments:** The treatment schedule below may be modified based on field conditions at the discretion of the Engineer. The Contractor shall provide a 10 day work notice to the Engineer prior to proceeding with each treatment. In all cases, each treatment must be reviewed once the work is performed, and accepted before payment is made for that treatment stage.

Initial Treatment: Shall commence at the beginning of the Contract time, prior to clearing and grubbing activities. Any invasive species found within a proposed cut slope shall be fully eradicated to the satisfaction of the Engineer prior to any earth work operations. After the completion of the initial treatment, the work must be reviewed and accepted by the Engineer prior to any earth excavation in that area. If herbicide is the initial treatment method, a minimum of 14 days is required prior to clearing and grubbing operations, so the herbicide application can take effect.

Intermediate Treatment(s): Shall be conducted throughout the duration of the Contract, a minimum of one time per calendar year, and one additional time to areas receiving plantings in the fall, during the optimal growing season between the dates of June 15 and September 1. Areas receiving plantings in the fall shall be treated a minimum of 20 days prior to the scheduled planting. Treatments shall occur at the discretion of the Engineer. Optimal treatment times may be specific to the species being treated and this must be considered and documented when developing the Invasive Vegetation Removal Plan. Several treatments may be required to treat all species that are present.

2-Year Follow Up Treatment(s): From the date of final acceptance of all plantings and the start of the 2-Year Plant Establishment Period, all areas which have been treated under this item shall be monitored and shall have any re-growth treated as needed. A minimum of one treatments is required within this period, however additional treatments may be required for any and all re-growth.

The Contractor shall secure a Permit Bond in the amount of 20% of the sum of the total bid price for this item, along with an Encroachment Permit from the Department in order to guarantee the 2-Year Follow Up Treatment(s) period.

The Permit Bond shall be provided to the Department at the date of final acceptance of all plantings and the start of the 2-Year Plant Establishment Period. A semi-final inspection will be held 1 year from this date, with the Contractor, Engineer, and Landscape Designer in attendance, to

determine the acceptability of the invasive treatments. An inventory of areas requiring retreatment will be made by the Department and shall be performed by the Contractor. A final inspection will be held 2 years from the date of final acceptance of all plantings and the start of the 2-Year Plant Establishment Period, with the Contractor, Engineer, and Landscape Designer in attendance, to again determine the acceptability of the invasive treatments. An inventory of areas requiring retreatment will be made by the Department and shall be performed by the Contractor. After the Contractor completes all areas of final retreatments, the DOT Encroachment Permit and Permit Bond will be released by the Department.

**Method of Measurement:** This work will be measured for payment by the number of square yards of invasive and unwanted vegetation identified, surveyed, treated and eradicated as required including any required re-treatment of any regrowth or new growth. No additional payment will be made for subsequent treatments. The area for removal will be surveyed and flagged prior to treatment and measured. After a review of the surveyed limits, the Engineer may designate additional areas for removal that are not shown on the plans. These additional areas will be measured for payment and included as part of the Contract work.

Where selective removal is required, the square yards of the drip line of the invasive or unwanted vegetation will be measured for payment.

**Basis of Payment:** This work will be paid for at the Contract unit price per square yard for "Control and Removal of Invasive Vegetation." This payment shall include all labor, surveys, materials, tools, and equipment necessary for limits of the invasive and unwanted vegetative area(s); maintenance of the limits throughout the Project; species identification; and cutting, excavation, treating, re-treating, removal, and off-Site disposal of designated invasive and/or contaminated plant material. Off-Site disposal of residue shall include the loading, transport, dumping, and fees associated with legal off-site disposal.

- ☐ Upon approval of the required IVRP, the Contractor will receive a payment equal to 10% of the estimated item value
- ☐ Upon initial herbicide or mechanical removal treatment methods as it is described in the IVRP, the Contractor will receive a payment equal to 20% of all areas receiving treatment
- ☐ Upon successful completion of the initial treatment period, as determined during the review by the Engineer, the Contractor will receive a payment equal to 25% of all areas receiving treatment.
- ☐ Upon successful completion of the first intermediate treatment period as determined during the Site review by the Engineer, the Contractor will receive a payment equal to 25%. No further payments will be made for additional intermediate treatments as required by the Contract.
- ☐ Upon deliverence of an accepted Permit Bond and Encroachment Permit to guarantee the 2-Year Follow Up Treatment(s) period, the Contractor will receive a payment equal to 20% of all areas receiving treatment, or the remaining bid value of areas receiving treatment if other treatment phases were performed and accepted as specified, at the discretion of the Engineer.

Where bulk excavation is required for removal, this work shall be covered under the Contract Item "Earth Excavation" for all excavation in excess of 2 feet. All other vegetation not designated as

invasive or unwanted vegetation under this item on the contract plans shall be removed in compliance with the Item “Clearing and Grubbing” in accordance with Section 2.01.

Vegetative stabilization of disturbed areas will be paid for under the respective Contract Items: “Turf Establishment,” “Wetland Grass Establishment,” or “Conservation Seeding for Slopes.” as noted on the plan sheets, or as directed by the Engineer or member of the Landscape Design Unit.

<u>Pay Item</u>	<u>Pay Unit</u>
Control and Removal of Invasive Vegetation	s.y.

## **ITEM #0969030A - PROJECT COORDINATOR (MINIMUM BID)**

*Article 1.05.08 – Schedules and Reports of the Standard Specifications is hereby amended by the following:*

*Add the following:*

**Description:** Under this item the Contractor shall furnish the services of an administrative employee, entitled the Project Coordinator, for this Project, to coordinate and expedite all phases of the work required for the Project and to ensure that the construction schedule is maintained.

The minimum lump sum bid for this item shall be equal to **0.5%** of the Contractor's total bid. Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to include the minimum bid amount for this item.

The Project Coordinator's resume shall be submitted for approval by name, in writing, within seven (7) calendar days of the award of the Contract, and shall not be changed without prior written notice to the Department.

This resume must demonstrate the Project Coordinator is experienced and versatile in the preparation, interpretation and modification of Critical Path Method (CPM) construction schedules. This must include successful completion of at least three (3) construction projects of similar complexity, where they served in a lead scheduling capacity. If the Contractor does not have a person in their company that has these skills, then the Contractor shall engage the services of a Consultant, subject to the approval of the Engineer, for the scheduling work required. If a Consultant is engaged, they shall be present at the first meeting, along with the Project Contractor, prepared to discuss, in detail, the methods and techniques they propose to use. Thereafter, the Project Coordinator or the Consultant responsible for updating the CPM Schedule shall attend all meetings between the Contractor, its Subcontractors, and any other meetings, which will affect the CPM schedule. The Contractor shall prepare CPM Schedules utilizing the latest version of Primavera Project Planner software.

When the Contract is administered under Section 1.20, the following requirement shall also apply:

The Project Coordinator shall have, in addition to the above noted requirements, a minimum of eight (8) years' experience related to commercial/industrial building construction as a Project Coordinator performing duties similar to those required herein. The Project Coordinator shall have knowledge of all trades involved in the construction, including civil/site work, environmental work, concrete work, masonry work, steel work, wood work, electrical work, and mechanical work. Other combinations of experience and education totaling ten (10) years in commercial building construction will be considered subject to the approval of the Engineer.

**Computer Software and Printer:** The Contractor shall provide the following equipment with all the required maintenance and repairs (to include labor and parts) throughout the Contract life. The Engineer reserves the right to expand or relax the specification to adapt to the software and hardware limitations and availability.

The Contractor shall provide the Engineer with a licensed copy registered in the Department's name of the latest versions of the software listed and maintain customer support services offered by the software producer for the duration of the project. The Contractor shall deliver to the Engineer all supporting documentation for the software and hardware including any instructions or manuals.

**Software – Minimum Specification:** The Contractor shall provide the Engineer with a licensed copy of the latest version of the Oracle Primavera Contractor – Deluxe Version scheduling software, registered in the Department's name, and maintain the Primavera customer support service contract over the duration of the project.

**Printer:** An addition printer shall be provided that meets the printer specifications noted under contract item for "Construction Field Office" and is compatible with the software.

The Contractor is responsible for service and repairs to all computer hardware. All repairs must be performed within 24 hours. If the repairs require more than a 24 hours then a replacement must be provided.

**Construction Methods:** The Project Coordinator shall attend all meetings between the Contractor and the Department, the Contractor and its Subcontractors, and any other meetings that affect the progress of the job. The Project Coordinator shall be knowledgeable of the status of all parts of the work throughout the length of the Contract.

*Please delete any reference to Bar Chart under 1.05.08 – Schedule and Reports and replace with the following:*

Critical Path Method (CPM)

*Please add the following:*

Proper relationship between all major activities shall be indicated. Node numbers shall be coded such that the major activities shown on the Critical Path Schedule shall be easily referenced to the Detailed Project Schedule when it is developed. Break down the work covered under each Special Provision, or Division and Section of Article 1.20 of the Standard Specifications, into individual activities required and logically group related activities together within the CPM.

All documents, which require approval by the Department, shall be clearly identified within the schedule. The Department and any outside agency shall be allocated a minimum number of calendar days in accordance with Article 1.20-1.05.02. If Article 1.20 does not apply, then the Department shall be allocated a minimum of thirty (30) calendar days (exclusive of weekends

and holidays) for review and approval of each submittal. Any submittals requiring approval by an outside Agency (ConnDEEP, Coast Guard, Army Corps of Engineers, etc.) shall be allocated a minimum of sixty (60) calendar days. The Department shall not be held responsible for any delay associated with the approval or rejection of any substitution or other revisions proposed by the Contractor.

The schedule shall indicate the logic of the work for the major elements and components of work under the Contract, such as the planned mobilization of plant and equipment, sequences of operations, procurement of materials and equipment, duration of activities, type of relationship, lag time (if any), and such other information as it is necessary to present a clear statement of the intended activities.

The schedules shall consist of a network technique of planning, scheduling and control, shall be a clear statement of the logical sequence of work to be done, and shall be prepared in such a manner that the Contractor's work sequence shall be optimized between early start and late start restraints. The Contractor shall use the same criteria in a consistent manner throughout the term of the project. If, at any time, the Contractor alters logic, original durations, and descriptions, adds activities or activity codes or in any way modifies the Baseline Schedule, they must notify the Engineer of the change, in writing, presenting in detail the reasons for the change. The Engineer reserves the right to approve or reject any such change.

The critical path of the project must be identified on the CPM schedule. The critical path is the longest-duration path through the network. The significance of the critical path is that the activities that lie on it cannot be delayed without delaying the project. Because of its impact on the entire project, critical path analysis is an important aspect of project planning.

The critical path can be identified by determining the following four parameters for each activity:

1. ES - Earliest Start Time: the earliest time at which the activity can start given that its precedent activities must be completed first.
2. EF - Earliest Finish Time: equal to the earliest start time for the activity plus the time required to complete the activity.
3. LF - Latest Finish Time: the latest time at which the activity can be completed without delaying the project.
4. LS - Latest Start Time: equal to the latest finish time minus the time required to complete the activity.

The *float time* for an activity is the time between its earliest and latest start time, or between its earliest and latest finish time. Float is the amount of time that an activity can be delayed past its earliest start or earliest finish without delaying the project. Delays to activities on the critical path through the project network in which no float exists, that is, where  $ES=LS$  and  $EF=LF$  will delay the project.



Float available in the schedule, at any time shall not be considered for the exclusive use of either the Department or the Contractor. During the course of Contract, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Project float will be a resource available to both the Department and the Contractor.

Each CPM Schedule submittal shall be in the form of an activity on node diagram (precedence diagramming method) and shall include at a minimum; an Early Start computer sort, a Total Float computer sort, an Activity Number computer sort, a Schedule Diagram in the Time Scaled Logic format and a backup data CD-ROM which includes all Primavera project files. The diagrams may be requested printed out by the Department and shall be on 22" x 34" sheets. Additional, more detailed diagrams for important aspects or phases of the work may be required on large or complex projects.

Activity I.D. numbers shall be keyed to the item numbers assigned on the detailed estimate sheet. The first three digits (four digits for highway illumination, signing, traffic signals and utility work) of the activity I.D. number shall be identical to the first three digits of the item number in the Contract. The remaining digits may be used to provide unique, orderly and sequential I.D. numbers for each activity.

Activity codes shall be added to the schedule dictionary at the direction of the Engineer. At a minimum, activity codes for responsibility (prime, subcontractor by name), location of work (bridge #, span #, sta. #, site, building, type of work, etc.) and stage or phase number should be included.

1. Recovery Schedules: If, in the opinion of the Engineer, the updated schedule indicates that the Project has fallen behind schedule, or that a revision in sequence of operations may be necessary for any other reason, absent a justifiable time extension, the Contractor shall immediately institute all necessary steps to improve the Project's progress and shall submit such revised network diagrams, tabulations and operational plans, as may be deemed necessary by the Engineer, to demonstrate the manner in which an acceptable rate of progress will be regained.

Should the Contractor not demonstrate an ability to regain an acceptable rate of progress, the Engineer shall require the schedule to be resource loaded with the next monthly update. No additional compensation will be allowed for resource loading the schedule.

2. As-Built Schedules: Within thirty (30) days of completion of the project, including all corrective work, the Contractor shall submit an "As-Built Schedule" showing the actual progress of work. The Contractor shall submit three prints of this final CPM Schedule and one project backup data CD-ROM which include all Primavera project files for the Engineer's exclusive use.

The following shall also apply to Contracts administered under Section 1.20:

3. Daily Construction Reports: The Project Coordinator shall assist the Engineer in the preparation of a daily construction report by ensuring that each of the Contractor's employees and subcontractors working on the Project Site on a given day signs the Engineer's sign-in sheet for that day; and by keeping and providing to the Engineer its own daily list of employees and subcontractors who worked on the Project Site on that day.

**Method of Measurement:** Within ten (10) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for approval a breakdown of its lump sum bid price for this item detailing:

1. The development cost to prepare the Baseline Schedule in accordance with these specifications. Development costs shall not exceed 25% of the total cost of the item and shall include costs to furnish and install all specified hardware.
2. The cost to provide the services of the Project Coordinator, including costs to prepare and submit the Monthly Updates and Narrative; furnish and submit any Recovery Schedules; furnish and submit Two Week Look Ahead Schedules and maintenance of and supplies for the specified hardware noted above. A per month cost will be derived by taking this cost divided by the number of Contract months remaining from the date of acceptance of the Baseline Schedule.
3. The cost of submission and certification of the As-Built Schedule in accordance with these specifications. The submission and certification costs shall be no less than 2% of the total cost of the item.
4. Substantiation showing that the costs submitted are reasonable based on the Contractor's lump sum bid.

Upon approval of the payment schedule by the Engineer, payments for work performed will be made as follows:

1. Upon approval of the "Baseline" Schedule by the Engineer, the lump sum development cost will be certified for payment.
2. Upon receipt of each monthly narrative and update of the "Baseline" Schedule, the per month cost for the services of the Project Coordinator will be certified for payment.
3. Upon approval of the As-Built Schedule by the Engineer, the lump sum submission and certification cost will be certified for payment.

**Basis of Payment:** This service will be paid for at the Contract lump sum price for "Project Coordinator" complete, which price shall include the preparation and submission of all schedules, narratives, updates, reports and submittals. The lump sum price shall also include the

cost of providing a complete, licensed copy of the Primavera software which will remain the property of the Engineer, and all materials, equipment, labor and work incidental of this service.

The lump sum price will be certified for payment as described in "Method of Measurement" subject to the following conditions:

1. Any month where the monthly update of the "Baseline" CPM schedule is submitted late, without authorization from the Engineer, will result in the following actions:
  - a. The monthly payment for the Project Coordinator item will be deferred to the next monthly payment estimate. If any monthly submittal is more than thirty (30) calendar days late, there will be no monthly payment for the services of the Project Coordinator.
  - b. The greater of 5% of the monthly payment estimate or \$25,000 will be retained from the monthly payment estimate until such time as the Contractor submits all required reports.
  - c. If in the opinion of the Engineer, the Contractor is not in compliance with this specification, the Engineer may withhold all Contract payments.
2. In the event the Contract time extends beyond the original completion date by more than thirty (30) calendar days, and a time extension is granted to the Contractor, the Department may require additional CPM updates which will be paid for at the per month cost for the services of the Project Coordinator.
3. If the Contractor is not in compliance with this specification or has failed to submit a "Baseline" schedule, monthly update, or a Recovery Schedule for any portion of the work, the Engineer will withhold all Contract payments until the schedule is submitted to, and approved by, the Engineer.

Pay Item

Project Coordinator

Pay Unit

L.S.

## **ITEM #0969049A – DOCUMENT CONTROL SPECIALIST**

**Description:** Under this item the Contractor shall furnish the services of one of his administrative employees, entitled Document Control Specialist who will ensure that the Contractor and all other parties as designated by the Engineer will prepare, status, electronically file and send all project correspondence and drawings utilizing a document control system as established and maintained by the Department. The primary function of the document control system is to ensure timely processing of all contract documentation in coordination with the project schedule. This document control system will also provide uniform project information and reporting. The Document Control Specialist shall be designated by name, in writing with a resume of their qualifications, within five (5) calendar days of the award of the Contract and shall not be changed without prior written notice to the Department.

The Document Control Specialist shall be knowledgeable of the status of all contract documentation aspects of the work throughout the length of the Contract. The Contractor shall prepare and maintain the contract documentation utilizing the system established by the Department. The document control system will be physically located in a secure location designated by the Department. The Contractor will be provided access, via the internet, to the document control system. All references to the use of the “system” below shall refer to the Department’s shared document control system as described above. All information that resides on the shared document control system shall become the sole property of the Department.

The minimum lump sum bid for this item shall be **\$270,000** (two-hundred seventy thousand dollars). Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor’s bid to include the minimum bid amount for this item.

**Documentation Requirements:** All correspondence for the project shall be produced and controlled using the system, including, but not limited to: transmittals, meeting minutes, requests for information (RFI’s), requests for change (RFC’s), submittals, field memos, notices, letters, and punch lists. All common correspondence files (submittals, requests, answers, changes, reports, minutes, agendas, letters, etc) shall be generated from, and stored within the common file server, including any and all file attachments. Submittals, including shop drawings, working drawings, catalog cuts, material certifications, and all documentation required by contract, shall be submitted electronically via the system. The Contractor is responsible to coordinate the overall creation and submission of all project documentation to meet the requirements of the project schedule and specifications. The Contractor is encouraged to supply the Department with corporate logos, formats, etc. to facilitate the creation and utilization of custom forms and reports.

The named Document Control Specialist shall be designated as the Submittal Coordinator within the system and will be responsible for maintaining information related to the responsibility, status, elapsed time since submission, held time, start/finish times, and a history of all submittal

revisions. A submittal log must be maintained to indicate the latest construction submittals sent and received and the distribution of these drawings to the Department. Each submittal (shop drawing, working drawing, product data, samples, etc) must be individually entered, tracked, and the status maintained, including all revisions. The Contractor is responsible to utilize the latest approved drawings as identified in the control system. All revisions are to be logged into the control system, describing each change.

All meeting minutes shall be logged into the control system. The Contractor is responsible to utilize meeting minutes and respond (electronically) to meeting minute items assigned to the Contractor.

Documents (letters, logs, shop or working drawings, sketches, payrolls, etc) to be transmitted to the Department by the Contractor, for which the Contractor does not have an electronic version, shall be scanned, converted into an Adobe Acrobat PDF format, and attached accordingly in the system.

The document control system shall be available for Contractor use at all times unless system maintenance (i.e. backups, upgrades, etc) is being performed. System maintenance will generally be limited to 10PM – 6AM, Monday - Friday and at various times on weekends. In the event a Contractor's authorized user cannot access the control system, the Contractor shall notify the Department's control system representative. In the event the control system becomes unavailable during normal business hours for an extended period of time, the Contractor may issue correspondence requiring immediate attention by the Department in hard copy format. The hard copy correspondence must be entered into the control system immediately upon becoming available again. Inability by the Contractor to gain access to the document control system for any reason shall not be grounds for claim. The use of the database is not required for proprietary cost and contract information.

The Department shall be allocated a minimum of seven (7) calendar days (using a 7-day calendar, exclusive of holidays) for review and response to each RFI submitted. RFI's requiring information from outside agencies shall be allocated twenty-one (21) days (using a 7-day calendar, exclusive of holidays).

The Department shall be allocated a minimum of thirty (30) calendar days (using a 7-day calendar, exclusive of holidays) for review and response to each RFC submitted. RFC's requiring information from outside agencies shall be allocated sixty (60) days (using a 7-day calendar, exclusive of holidays).

The Department reserves the right to reject any RFC submitted in the form of an RFI for the purpose of reducing the Department's review and response time. Such documents will not be considered for review by the Department and will be returned to the Contractor for resubmission. Review and response time for such document will commence upon resubmission in the correct format.

The Department shall be allocated a minimum of thirty (30) calendar days (using a 7-day

calendar, exclusive of holidays) for review and approval of each submittal, unless specified otherwise within the contract documents. Any submittals requiring approval by an outside Agency (ConnDEP, Coast Guard, Army Corps of Engineers, etc.) shall be allocated a minimum of sixty (60) calendar days (using a 7-day calendar, exclusive of holidays). Whenever multiple Contractor submittals are under review by the Department, the Contractor shall prioritize the submittals and notify the Department thereof. The Department shall not be held responsible for any delay associated with the approval or rejection of any substitution or other revisions proposed by the Contractor.

Submittal and review activities are required in the Project Schedule. Submittal activities must be coordinated between the Project Scheduler and Document Control Specialist such that submittal information common to both the project schedule and the document control system (required and actual dates, sequence of submission, resubmissions if required) correspond with one another. All resubmissions shall be numbered with the original submittal number but designated a new revision number. All resubmissions shall be logged into the control system to properly calculate the entire duration required for the submittal process from the original submission date to final approval to indicate total days to process the submittal through all review cycles. Coordination of submittals is required for same work and interfacing work so that one submittal will not delay another.

The submittal log will be developed according to the following format:

#### Submittal Package

The Package name shall be the seven digit Item Number. The Package Title shall be the corresponding Item Name. Instances where contract items require an extensive number of submittals (i.e. rebar, structural steel, etc), packages shall be further separated by structure components or location. For example:

<u>Package</u>	<u>Title</u>
0602006-01	Deformed Steel Bars / B3039
0602006-02	Deformed Steel Bars / B167
0602006-03	Deformed Steel Bars / B6609

Instances where a submittal requires review by more than one department or agency (i.e. traffic items requiring both CDOT and City of New Haven review), the multiple reviewers option must be checked so that the individual reviewers can be designated, with each receiving a copy of the submittal for review.

The Package status shall initially be “Unsubmitted”. Upon submission of any submittal within the package the status should be changed to “Open”. Upon receipt of all final review comments for all package submittals, the status should be changed to “Closed”.

#### Submittal Item

All submittal items, as required by contract, must be individually entered, including shop & working drawings, product data, samples, etc. All submittals shall be associated with and

generated within a specific package. The submittal number shall be the package name followed by a three digit incremental number (i.e. 1205201-01-001, 0602006-03-001). The title shall be a clear description the submittal item. In the case of a drawing submittal, the title shall be the exact name of the drawing and the drawing number shall be entered in the Details section. The appropriate Category and Type shall then be selected.

Shop drawings shall be submitted in Adobe Acrobat PDF Package format. Each drawing will be included as a separate file within the package and named in kind with the drawing number. The PDF package shall be listed and attached in the system to the first submittal. The drawings shall be listed individually thereafter.

Working drawings shall be submitted in Adobe Acrobat PDF format. The PDF package shall be listed and attached in the system to a single submittal.

Electronic submittal attachments shall be named in kind with the submittal to which they are attached and include the revision number (ie. Submittal 0602006-03-001 would have a PDF attachment named 0602006-03-001-1.pdf).

Submittals requiring signature by a licensed engineer or other party shall be digitally signed utilizing a digital ID obtained from an Adobe partner (see [adobe.com](http://adobe.com) for list of partners).

Required Start & Required Finish shall represent the date range for the review process. Required Start shall be the date the submittal is issued by the Contractor for review. Required Finish shall be the completion date for the review cycle (either 30 or 60 days later, as appropriate). These dates will be reset by the Contractor for each additional review cycle.

Workflow must be completed for each submittal. Received From shall be the party from which the submittal originated (prime contractor, subcontractor, fabricator, vendor, etc). Sent To and Returned By shall be the primary reviewer as designated by the contract documents. Forwarded To shall be the Contractor's designated submittal coordinator.

Review cycles will be numbered 001, 002, 003, etc. according to the number of resubmissions. Distributions (submittal recipients) must be listed on the transmittal.

#### Submittal Forecast

In order facilitate the Department's review of the large number of submittals anticipated for this project the Contractor is to provide a submittal schedule. The submittal schedule will be created and maintained in the system as follows:

A submittal package must be created for each contract item requiring a submittal (note that large submittal items must be broken out as prescribed above). Within each package, a single submittal, numbered 001, will be generated from the submittal package which will be utilized to approximate when submittals for that package will be submitted for review. At a minimum, the submittal Number, Title, Status, Required Start, and Required Finish must be entered, where the Status is "Unsubmitted" and the Required Start and Required Finish represents the review period

for all submittals within this package. The Required Start and Required Finish dates must be coordinated with the project CPM schedule.

**Documentation Control System Access Requirements:** Within five (5) days of Contract Award, the Contractor shall designate, in writing, up to five (5) named Contractor personnel, to be approved and authorized by the Engineer to access the document control system. The Contractor shall designate one of the fifteen authorized personnel to be the Document Control Specialist and act as the document control system contact person for the Contractor. That person shall be experienced and trained in the use of the system. All Contractor personnel requesting access authorization must complete the minimum training requirements described below and submit a certificate of completion to the Department. Upon receipt of the request (with training certificate(s) and approval thereof, the Department will issue a username and password to each of the authorized Contractor personnel. The Contractor will ensure that only authorized Contractor personnel access and utilize the control system in a responsible, non-destructive manner. The Contractor shall make every reasonable effort to prevent the disclosure of access information for unauthorized use of the control system. The Department, at its discretion, may revoke access authorization from any user if it is determined that the user: a) has used the control system for any other reason than is intended by this specification; b) is no longer in the Contractor's employ or associated with the project or c) has disclosed their access authorization for use by another person or party for any reason. The Contractor is responsible to ensure their authorized users have access to the public internet from a computer system running any currently supported Microsoft Windows Operating System and Microsoft Internet Explorer Web Browser with a minimum Cipher Strength of 128 bit, version 7.0 or higher. Minimum modem speed shall be 768K (business DSL). The Contractor is responsible to ensure that anti-virus software is installed and maintained on any computer accessing the Department's document control system. Additionally, it is the Contractor's sole responsibility to maintain a compatible software system. Compatibility is defined as the ability to send and receive documents in a format viewable by the Department. The Contractor must provide valid individual email addresses for each authorized user to the Department based upon a MAPI compliant email system, such as Microsoft Outlook or Exchange.

**Training Requirements:** Contractor personnel accessing the document control system must fulfill minimum training requirements as follows: personnel must attend a two (2) day project specific training class provided by PL Logic, 1770 Massachusetts Avenue Suite 628, Cambridge, MA 02141, (Tel 617-494-9900, Web site: [www.pllogic.com](http://www.pllogic.com)). The Contractor must supply an acceptable training facility within 15 miles of the project site. Training facility shall have a computer workstation for each student in addition to a computer for the instructor. The instructor computer must be able to project to a screen/wall for classroom illustrations via a digital projector or large screen monitor (Minimum 40"). The computer workstations must be a minimum Pentium 2 GHz with 512MB of RAM, 200MB free disk space, running Windows XP/Vista. Additional workstation requirements include Microsoft TCP/IP networking protocol and a valid IP address, Microsoft Internet Explorer 7.0, 24-bit or higher color video, and 1028X764 video resolution minimum. Training facility shall have one (1) database server with the minimum specifications of: Pentium, 2.5 GHz, 2 Gigs RAM, 1.5 GB free disk space, running Windows XP Professional SP3 or Windows Vista Business Edition SP2 or Windows 2008



Server SE SP2, and one (1) web server with the minimum specifications of: Pentium 2.5 GHz, 2 GB RAM, 200 MB free disk space, running Windows 2003 Server R2 SP2 or Windows 2008 Server SE SP2, Microsoft TCP/IP networking with a permanent IP address, the port for the web server requests is 80 (the port is configurable, although port 80 is recommended), a local user account (local to the domain) on the server with read rights to the system report and forms directories, and access to the database server. Note that the database server and web server cannot run on the same hardware.

Any additional training required as a result of adding additional or replacing existing Contractor staff, including additional costs associated with meeting hardware requirements to run the latest version of the software at that time, shall be included in the total cost of this item.

**Submittals:** Within sixty (60) calendar days after award, the Submittal Coordinator shall prepare, in accordance with all requirements of this specification, and submit for review and acceptance, a Submittal Forecast and shall have the following requirements attached:

- Submittal Packages Summary Report
- Submittal Bar Chart Report

**Method of Measurement:** Within ten (10) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for approval a cost breakdown of his lump sum bid price. The submission must include substantiation showing that the costs breakdown submitted are reasonable based on the Contractor's lump sum bid. The cost breakdown shall be in accordance with the following payment schedule:

- 1) The cost to successfully complete all preparation and training to utilize the document control system in accordance with these specifications. The preparation and training costs shall not exceed 5% of the total cost of the item and shall include costs to establish customized forms or reports, back enter and scan all contract documentation prior to the access authorization, and to furnish and install all specified hardware.
- 2) The development cost to prepare the Submittal Forecast in accordance with these specifications shall not exceed 5% of the total cost of the item. Payment for this work will be made upon approval of the Submittal Forecast by the Engineer.

The cost to provide services of the Document Control Specialist, including costs to maintain the Submittal Forecast; Coordinating the Document Control System submittal information with the CPM Schedule submissions; preparing, submitting, utilizing, maintaining, coordinating and updating document control system items as required by all Contractor personnel with access rights to the system shall be paid as a per month cost and shall be derived by taking this cost divided by the number of contract months.

**Basis of Payment:** This service shall be paid for at the contract lump sum price for "Document Control Specialist" complete, which price shall include the training, preparation, status, electronically scanning, filing, and sending all project correspondence, and the furnishing, maintenance, and supply costs for all required hardware, software, and services as noted above in

the utilization of the document control system as established and maintained by the Department. The lump sum price will be certified for payment as described in "Method of Measurement" subject to the following conditions:

- 1) Failure by the Contractor to utilize and regularly update the system in a manner acceptable to the Department or failure to utilize the system for the storage of all project related files may result in the withholding of all contract payments until such time as all specification requirements have been satisfied. Failure by the designated Document Control Specialist to update submittal statuses on a regular basis shall result in the replacement of the Document Control Specialist at the Engineer's request. Additionally, the Contractor may be found in violation of Article 1.02.02 of the Standard Specifications "for having failed to prosecute work continuously, diligently and cooperatively in an orderly sequence".
- 2) In the event the project extends beyond the original completion date by more than thirty (30) calendar days, and a time extension is granted to the Contractor, the Department may require the continued utilization of the Document Control System which shall be paid at the per month cost for the services of the Document Control Specialist.

Pay Item  
Document Control Specialist

Pay Unit  
L.S.

## **ITEM #0969054A - CONTRACTOR QUALITY CONTROL PROGRAM LEVEL 1**

**Description:** The Contractor shall establish, maintain, and implement a written Project-specific Quality Control (QC) Program tailored to the complexity and scope of the work. This Program shall detail the programmatic documentation of the Contractor's processes for delivering the level of construction quality required by the Contract.

The written QC Program shall provide a comprehensive description of the planning, monitoring and reporting program the Contractor shall implement to ensure and document the quality of the work as it progresses.

The QC Program shall address, as a minimum, the following elements: Organization; Design Control; Procurement Control; Control of Subcontractors, Fabricators and Suppliers; Inspection; Special Process Control; Non-Conformance Resolution; Records; and Reporting.

The QC Program shall identify and list critical and routine work categories, which shall be used to differentiate the level of reporting, inspection and attention throughout the process.

The QC Program shall include a method to identify and resolve any deviations from the Contract while maintaining the Project schedule. The QC Program shall include a method to prevent recurring deviations once identified and resolved.

The Contractor shall modify the QC Program as needed to meet the requirements of this specification. The QC Program shall be recognized as a dynamic document, subject to revisions and amendments, as required, in response to actual Site conditions, work methods, and to address deviations encountered and corrected throughout the Project.

The Contractor shall furnish the services of a dedicated (sole responsibility), full-time, on-Site Quality Control Manager (QCM) for the Project. The QCM shall report directly to upper management and shall have the authority to issue stop work orders.

When the Contractor's schedule dictates simultaneous work operations, the Contractor is responsible for supplementing the QCM with additional QC personnel (independent of trade staff) to meet the requirements of this specification.

The additional Contractor Quality Control requirements described herein shall be used in conjunction with the Department's Standard Specifications. The QC Program is neither intended to relieve the Contractor from its responsibility under the Contract, nor to replace the external inspections of the work carried out by the Engineer.

The minimum lump sum bid for this item shall be **\$200,000**. Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to the minimum bid amount for this item.

### **Construction Methods:**

#### **Submittals**

- (1) **QCM:** Within thirty (30) days of Contract award, the Contractor shall submit, in writing, the name of their proposed QCM with a resume of their qualifications, submitted in accordance with the requirements listed below, for concurrence by the Department. The QCM shall not be changed without prior written notification to the Department.

The submittal shall outline the credentials of the proposed QCM, who shall be an individual with demonstrated construction experience. This shall include at least 7 years of experience in any combination of the following areas:

- Field inspection experience
- Construction experience relevant to the type of work and the scope of the Project
- Previous experience as a Quality Control professional

The submittal shall also list any certifications or training in quality control principles (NETTCP Quality Assurance Technologist or approved equal) of the proposed QCM and two (2) letters of recommendation from previous clients.

- (2) QC Program: Within forty-five (45) days of Contract award, the Contractor, with direct input from the QCM, shall prepare and submit to the Department, for review and approval, a written QC Program, including the Elements listed below, and in accordance with all requirements of this specification.

Sample forms and reports intended to be used to assure compliance with this specification shall be included in the initial submittal of the QC Program. Sample forms and reports shall include:

- Sample document control tracking form
- Sample design control tracking form (for Contractor design-build items)
- Sample Shop Drawing/Working Drawing review
- Sample material receiving inspection report
- Sample inspection forms for critical work categories
- Sample special process control forms
- Sample non-conformance report
- Sample daily and monthly reports

The Contractor's QCM, Project Manager and a representative of their upper management shall sign the final QC Program submission and any revisions or amendments thereto. Any revisions or amendments made to the QC Program shall be submitted in writing to the Engineer for acceptance.

Subcontractors, fabricators and suppliers involved in critical work categories, as defined in the QC Program, shall have their own work-item specific QC Plan which shall be included as an addendum to the Contractor's QC Program, and shall comply with all conditions of this item.

- (3) Additional QC Personnel: When additional QC personnel are required due to simultaneous work operations, the Contractor shall provide resume(s) of qualifications of the proposed personnel at least thirty (30) days in advance of the work. All additional QC personnel utilized for inspecting, sampling, and testing of materials shall be certified by NETTCP (or another entity acceptable to the Department) in the appropriate designation for the work or materials being inspected, sampled, or tested. These individual(s) shall also have demonstrated construction experience of at least 5 years in any combination of the following areas:

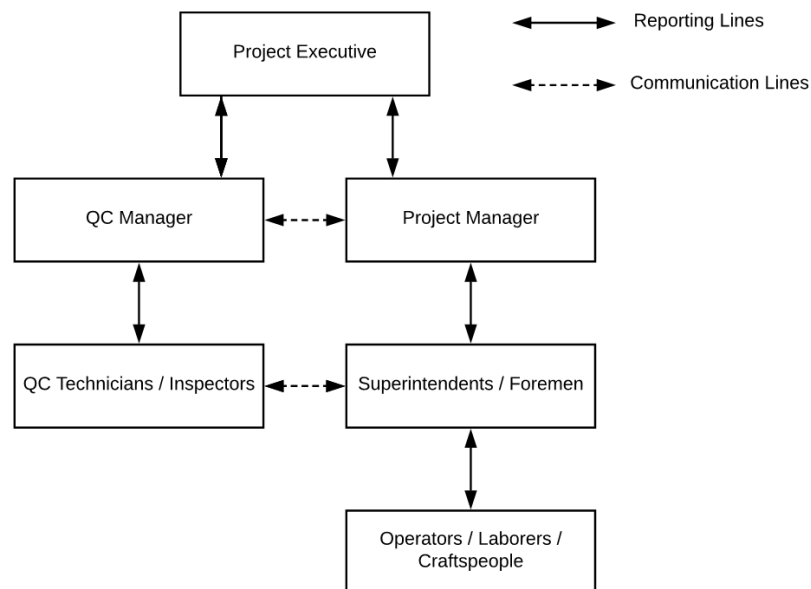
- Field inspection experience
- Construction experience relevant to the type of work and the scope of the Project
- Previous experience as a Quality Control professional

- (4) Laboratories: All laboratories performing QC testing of Project Produced Materials shall be qualified through either the AASHTO Accreditation Program (AAP) or the NETTCP Laboratory Qualification Program. The Contractor shall provide laboratory proof of qualification at least thirty (30) days in advance of the work.

(5) **Reports:** The Contractor shall be required to produce and submit to the Engineer daily and monthly inspection reports as described in the Reporting Element of this specification.

**Elements of the Contractor Quality Control Program:**

**1. Organization:** This Element shall describe the Contractor's organization, including reporting relationships within and external to the Contractor's organization. The name of the QCM shall be clearly stated and this individual shall be responsible to upper management and have the authority to stop work. An organizational chart shall be included to graphically depict the Contractor's organizational structure and major reporting lines and relationships. The organizational chart shall clearly show the hierarchy between the QCM, upper management and additional QC personnel; and a narrative shall follow which shall define the roles, duties and responsibilities of each person in the implementation of the QC Program and in the resolution of QC issues. This Element shall also include the resumes of all QC personnel.



**2. Design Control:** This Element shall describe how the Contractor and the QCM control any design process (i.e. Working and Shop Drawings) for which it is responsible. This shall include the selection of design input data, checking for correctness, completeness, compatibility and format, and reviewing and approving design output documents prior to submission to the Department. This Element shall provide guidance as to how the QCM or other personnel shall indicate that documents have been reviewed by the Contractor prior to submission, and that Department comments have been adequately addressed prior to any required resubmissions.

**3. Procurement Control:** This Element shall describe the methods used by the Contractor and the QCM to assure that all materials and specialized equipment provided for the work are as specified. Included shall be guidelines for documenting that purchase documents have been reviewed to assure that correct details have been ordered, including specification, grade, type, color, Buy America or other aspects as required by the Contract.

This Element shall describe receiving inspection activities to be performed, and documentation required to confirm that the correct material or equipment has been delivered. A list of items requiring Materials Certificates and/or Certified Test Reports shall be developed by the Contractor and included in this Element. The Contractor shall prepare a "Material Receiving

Inspection Report” which shall include records of inspections performed and reviews of material test reports or other documentation required by the Contract. It shall also include copies of Materials Certificates and/or Certified Test Reports for all these items.

As a minimum, receiving inspections shall be performed on the following materials:

- Materials requiring a Materials Certificate or Certified Test Report
- Source-Controlled Materials (not inspected at the manufacturing plant)
- Job-Controlled Materials (other than concrete, bituminous and soils)

Following a receiving inspection, a copy of the “Material Receiving Inspection Report,” along with associated documents, shall be submitted to the Engineer.

**4. Control of Subcontractors, Fabricators and Suppliers:** Subcontractors, fabricators and suppliers involved in critical work categories, as defined in 5(a) herein, shall develop their own QC Plan to be added as an addendum to the Contractor’s QC Program, which shall comply with all conditions of this item. The Contractor shall be responsible for reporting on QC activities performed by or for subcontractors, fabricators and suppliers.

It is the Contractor’s responsibility to notify all subcontractors, fabricators, and suppliers of the requirements of the Contract. This Element shall describe the methods used by the Contractor and the QCM to assure that all the applicable requirements of the Contract are passed on to the subcontractors, fabricators and suppliers. This Element shall include the methods used by the Contractor and the QCM to monitor and control the quality of the work performed by subcontractors, fabricators and suppliers, and to obtain the required quality records.

This Element shall also describe how the Contractor will ensure that:

- The Engineer receives advance notice of:
  - The source of supply
  - The location of fabrication, including component parts
  - The schedule of fabrication, including the date of beginning of fabrication and the date the material is to be delivered to the Project
- Material fabricated specifically for the Project will be inspected and approved prior to being shipped or incorporated into the work
- Properly documented mill test reports are furnished by suppliers
- Subcontractors are approved prior to performing any work for or on the Project

**5. Inspection:** This Element shall describe how the Contractor and the QCM will assure that the specified quality of materials and workmanship will be achieved. The Contractor’s QC Program is not related to any inspection carried out by the Engineer. Inspection will include the identification and tracking of the quality characteristics (metrics) used to verify that the level of quality of materials and workmanship conforms to the requirements of the Contract.

The QC Program shall identify the reporting requirements for each item based on its work category, and these reporting requirements will be approved by the Engineer. The work categories will be identified as **critical** or **routine**.

**(a) Critical Work Categories:** For this Project, critical work categories shall include, but are not limited to the following:

- Earthwork
- Hot Mix Asphalt
- Drainage
- Landscaping

- Environmental Compliance
- Historic Bridge Rehabilitation

The QCM shall be familiar with all aspects of work related to critical work categories and no work shall be performed on these categories without the prior knowledge of the QCM. The QC Program shall define specific means and methods that shall be employed to minimize, identify, resolve and prevent recurrence of deviations from the Contract in regards to materials or workmanship for each of the critical work categories listed.

The QC Program shall identify hold points in the critical work categories beyond which work operations cannot proceed until the QCM and the Engineer have inspected the work in place and releases the hold.

When simultaneous critical work categories are required by the Contractor's schedule, additional QC personnel shall be required.

This Element shall describe the system(s) used to assure that all materials and workmanship for critical work categories are in conformance with the Contract, including:

- visual inspection of the work, including frequency and hold points
- materials to be tested
- tests to be conducted
- frequency of testing
- locations of sampling
- checks
- intermittent or continuous inspections
- inspections of completed work
- or a combination of above methods

Quality control reporting forms shall be developed to document the work performed by the QCM and QC personnel, on each of these critical work categories. The forms shall be signed by Contractor supervisory field personnel, the QCM and QC personnel (if applicable), to document conformance of the work being performed. All work performed by the QCM and QC personnel on these critical work categories shall be documented and included in the QCM's daily and monthly reports.

**(b) Routine Work Categories:** All other work categories not covered by 6(a) will be defined as routine work categories and the general provisions of this specification shall apply.

**6. Special Process Control:** This Element shall describe the measures to be used to assure that any special processes (such as, welding, high-strength bolting, nondestructive examination, critical coatings, surveys, and control of critical tolerances) shall be controlled by procedures that are described in and comply with the Contractor's approved QC Program. The recording of results shall properly document that processes are in conformance with the Contract. In addition, this Element shall describe the methods used to verify, document and track any pre-qualification of the processes, personnel and equipment where required by the Contract.

**7. Non-Conformance Resolution:** This Element shall describe the protocol(s) for correcting any material or workmanship found not to be in compliance with the Contract, the reporting requirements for documenting any non-compliance, subsequent corrective measures and issue resolution.

**(a) Contractor-Issued Non-Conformance Reports:** This Element shall outline the Contractor's use of self-issued non-conformance reports to document actions taken to identify, resolve and prevent recurring deviations. The non-conformance reports shall include signatures of the responsible persons for each process of the corrective action taken. Upon resolution of a non-conformance issue, the QC Program shall be revised to identify preventive measures that shall be taken to prevent similar deviations. Contractor supervisory field personnel involved in the work shall be informed of any changes implemented to avoid recurrence of deviations.

**(b) Engineer-Issued Non-Compliance Notices (NCN):** Non-compliance notices (NCNs) issued by the Engineer shall also be an indication of non-conformance and shall be addressed according to 1.05.11 and resolved to the satisfaction of the Engineer. Upon resolution, the QC Program shall be revised to identify preventive measures that shall be taken to prevent similar deviations. Contractor supervisory field personnel involved in the work shall be informed of any changes implemented to avoid recurrence of deviations.

**8. Records:** This Element shall describe how various records generated by the Contractor are originated, maintained, received, filed, protected and authenticated. Quality Control records required for submittal to the Engineer shall be described. This Element shall outline the Contractor's procedure for retaining records for a period of 3 years after acceptance of the Contract.

**9. Reporting: QC Inspection Reports:** The Contractor shall be required to produce and submit to the Engineer daily and monthly inspection reports in accordance with all requirements of this specification. The QC Program shall clearly define the information that shall be provided as part of the daily and monthly reports.

**(a) Daily Reports:** Daily reports shall include documentation of all activities, including inspection, material testing, and any work associated with the Elements of this specification, performed by the QCM and other QC personnel. The location of any forms relative to this specification shall be referenced in the daily reports.

For any week that a non-conformance report is issued, either by the Contractor or the Engineer, actions taken to resolve the non-conformance report shall be summarized and included with the submission of the daily reports. Updates on the status of the non-conformance shall continue in each submission of daily reports until the non-conformance issue is resolved. Once resolved, the next submission of daily reports shall document that supervisory field personnel involved in the work have been informed of any changes to be implemented to avoid recurrence of deviations. Any revisions or amendments made to the QC Program, once submitted and accepted by the Engineer, shall be documented in the next submission of daily reports.

Daily reports shall be submitted (as a package) to the Engineer by 12 PM on the Tuesday following the week of the inspection reports, or as agreed to by the Engineer. Except as otherwise authorized by the Engineer, submissions after that time will be considered late.

**(b) Monthly Reports:** Monthly reports shall include a summary of the work performed, including QC activities, in the previous month and also a one (1) month "look ahead" schedule with expected QC efforts and procedures for critical and routine work categories. Monthly reports shall also include a submittal status update spreadsheet.



Monthly reports shall be submitted to the Engineer by the fifth (5th) business day each month. Except as otherwise authorized by the Engineer, monthly submissions after that time will be considered late.

**(c) Quality Assurance/Quality Control (QA/QC) Meetings:** Meetings shall be held specific to the QC Program. The Contractor shall, at minimum, be represented by the QCM and shall meet with the Engineer every other week, or more frequently at the Engineer's request, to review reporting and all work related to this specification.

**Method of Measurement:** Within forty-five (45) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for approval a schedule of values of its lump sum bid price for this item detailing the following:

1. The development costs to prepare the written QC Program. Development costs shall be ten percent (10%) of the total cost of the item.
2. The cost per-month to provide the services of the QC Program, including the QCM, QC activities, necessary QC personnel, preparing and submitting daily and monthly reports, and all other requirements of this specification. A per-month cost will be derived by taking the lump sum bid price, subtracting the development cost to prepare the written QC Program, and dividing the remainder by the number of Contract months remaining from the date of submission of the written QC Program.

**Basis of Payment:** This item will be paid for at the Contract lump sum price for "Contractor Quality Control Program Level 1" complete, which price shall include all submittals, QC Program revisions and amendments, inspections, monitoring, daily logs, reports, meetings, records, and all materials, equipment, labor and work incidental thereto.

Upon approval of the schedule of values by the Engineer, payments for work performed will be made as follows:

1. Upon acceptance of the written QC Program, the lump sum development cost from the payment schedule will be approved for payment.
2. Upon acceptable completion of the services of the QC Program for the month, the per-month cost will be approved for payment.

The Engineer reserves the right to apply the following reductions to the monthly payment portion, which cannot be recovered and will result in a reduction in the lump sum amount, should the Contractor fail to meet the requirements of this specification:

1. QC staff: A five percent (5%) reduction to the monthly payment will be applied for each day that acceptable QC services are not provided. The total reduction for any calendar month will not exceed the monthly payment for the item.
2. Reports: A five percent (5%) reduction to the monthly payment will be applied for each day that the required reports have been submitted late, up to a maximum of fifty percent (50%) of the monthly payment per report. This five percent (5%) reduction will apply to each independent report (each package of daily reports, described in 9(a) above, submitted on a weekly basis is considered one independent report). The total reduction for any calendar month will not exceed the monthly payment for the item.
3. QA/QC Meetings: A twenty-five percent (25%) reduction to the monthly payment will be applied for each bi-weekly QA/QC meeting not attended by the QCM. The total reduction for any calendar month will not exceed the monthly payment for the item.

Should the Contractor fail to continuously provide an acceptable QC Program, as required by this specification, the Engineer may withhold the entire monthly estimate until such time as all requirements are met.

Should the Contractor fail to comply with the QCM requirements of this specification, the QCM shall be replaced at the Engineer's request.

Only one monthly payment will be made for each calendar month regardless of the number of personnel required to complete the specified work.

Pay Item	Pay Unit
Contractor Quality Control Program Level 1	l.s.

## **ITEM #0969066A - CONSTRUCTION FIELD OFFICE, EXTRA LARGE**

**Description:** Under the item included in the bid document, adequate weatherproof office quarters with related furnishings, materials, equipment and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of CTDOT forces and others who may be engaged to augment CTDOT forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

**Furnishings/Materials/Supplies/Equipment:** All furnishings, materials, equipment and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

**Office Requirements:** The Contractor shall furnish the office quarters and equipment as described below:

Description \ Office Size	Small	Med.	Large	Extra Large
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	400	400	1000	2000
Minimum number of exterior entrances.	2	2	2	2
Minimum number of parking spaces.	7	7	10	15

**Office Layout:** The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on the building floor plan as provided by the Engineer.

**Tie-downs and Skirting:** Modular offices shall be tied-down and fully skirted to ground level.

**Lavatory Facilities:** For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by CTDOT personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and cold running water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

**Windows and Entrances:** The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the CTDOT and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel, wiring, outlets, etc., to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

- A. 120/240 volt, 1 phase, 3 wire
- B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
- C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
- D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
- E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
- F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
- G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
- H. After work is complete and prior to energizing, the State's CTDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
- I. Prior to field office removal, the CTDOT Office of Information Systems (CTDOT OIS) must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium and Large field office this shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. For an Extra-Large field office this shall consist of four (4) telephone lines: three (3) lines for phone/voice service and one (1) line dedicated for facsimile machine. The Contractor shall pay all charges.

Data Communications Facility Wiring: Contractor shall install a Category 6 568B patch panel in a central wiring location and Cat 6 cable from the patch panel to each PC station, Smart Board location, Multifunction Laser Printer/Copier/Scanner/Fax, terminating in a (Category 6 568B) wall or surface mount data jack. The central wiring location shall also house either the data circuit with appropriate power requirements or a category 5 cable run to the location of the installed data circuit. The central wiring location will be determined by the CTDOT OIS staff in coordination with the designated field office personnel as soon as the facility is in place.

For Small, Medium and Large field offices the Contractor shall run a CAT 6 LAN cable a minimum length of 25 feet for each CTDOT networked device (including but not limited to: smartboards and Multi-Function Laser Printer/Copier/Scanner/Fax) to LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. For an Extra-Large field office the Contractor shall run CAT 6 LAN cables from workstations, install patch panel in data circuit demark area and terminate runs with RJ45 jacks at each device location. Terminate runs to patch panel in LAN switch area. Each run / jack shall be clearly labeled with an identifying Jack Number.

The Contractor shall supply cables to connect the Wi-Fi printer to the Contractor supplied internet router and to workstations/devices as needed. These cables shall be separate from the LAN cables and data Jacks detailed above for the CTDOT network.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner/Fax, and smartboards listed below.

The installation of a data communication circuit between the field office and the CTDOT OIS in Newington will be coordinated between the CTDOT District staff, CTDOT OIS staff and the local utility company once the Contractor supplies the field office phone numbers and anticipated installation date. The Contractor shall provide the field office telephone number(s) to the CTDOT Project Engineer within 10 calendar days after the signing of the Contract as required by Article 1.08.02. This is required to facilitate data line and computer installations.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field Office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.	1	3	5	8
Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.	-	-	-	1
Personal computer tables (4 ft. x 2.5 ft.).	2	3	5	8
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1	1	1	2
Conference table, 3 ft. x 12 ft.	-	-	-	1
Table – 3 ft. x 6 ft.	-	-	-	1
Office Chairs.	2	4	8	20
Mail slot bin – legal size.	-	-	1	1
Non-fire resistant cabinet.	-	-	2	4
Fire resistant cabinet (legal size/4 drawer), locking.	1	1	2	3
Storage racks to hold 3 ft. x 5 ft. display charts.	-	-	1	2
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1	1	2	2
Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.	-	-	1	2
Case of cardboard banker boxes (Min 10 boxes/case)	1	1	2	3
Open bookcase – 3 shelves – 3 ft. long.	-	-	2	2
White Dry-Erase Board, 36" x 48" min. with markers and eraser.	1	1	1	1
Interior partitions – 6 ft. x 6 ft., soundproof type, portable and freestanding.	-	-	6	6
Coat rack with 20 coat capacity.	-	-	-	1
Wastebaskets - 30 gal., including plastic waste bags.	1	1	1	2
Wastebaskets - 5 gal., including plastic waste bags.	1	3	6	10
Electric wall clock.	-	-	-	2
Telephone.	1	1	1	-
Full size stapler 20 (sheet capacity, with staples)	1	2	5	8
Desktop tape dispensers (with Tape)	1	2	5	8
8 Outlet Power Strip with Surge Protection	3	4	6	9
Rain Gauge	1	1	1	1

Business telephone system for three lines with ten handsets, intercom capability, and one speaker phone for conference table.	-	-	-	1
Mini refrigerator - 3.2 c.f. min.	1	1	1	1
Hot and cold water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1	1	1	1
Microwave, 1.2 c.f. , 1000W min.	1	1	1	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*	*	*	*
Electric pencil sharpeners.	1	2	2	2
Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.	1	1	2	4
Small Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .	1	1		
Large Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .			1	1
Field Office Wi-Fi Connection as specified below under <u>Computer Related Hardware and Software</u>	1	1	1	1
Wi-Fi Printer as specified below under <u>Computer Related Hardware and Software</u> .	1	1	1	1
Digital Camera as specified below under <u>Computer Related Hardware and Software</u> .	1	1	3	3
Video Projector as specified below under <u>Computer Related Hardware and Software</u> .	-	-	-	1
Smart Board as specified below under <u>Computer Related Hardware and Software</u> .	-	-	-	1
Infrared Thermometer, including annual third party certified calibration, case, and cleaning wipes.	1	1	1	2
Concrete Curing Box as specified below under Concrete Testing Equipment.	1	1	1	1
Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1	1	1	1
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1	1	1	1
First Aid Kit	1	1	1	1

Flip Phones as specified under <u>Computer Related Hardware and Software.</u>	-	-	-	-
Smart Phones as specified under <u>Computer Related Hardware and Software.</u>	-	-	-	-
Turbidity Meter	1	1	1	1
Stanley Digital 4' Levels	1	1	2	2

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Computer Related Hardware and Software: The CTDOT will supply by its own means the actual Personal Computers for the CTDOT representatives. The Contractor shall supply the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors, and Smart Board(s) as well as associated hardware and software, must meet the requirements of this specification as well as the latest minimum specifications posted, as of the project advertising date, at CTDOTs web site <http://www.ct.gov/dot/cwp/view.asp?a=1410&q=563904>

Within 10 calendar days after the signing of the Contract but before ordering/purchasing the Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner/Fax), Field Office Wi-Fi, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projector(s) and Smart Board(s) as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Administering CTDOT District for review and approval. The Wi-Fi Printer, Wi-Fi Router, Flip Phones, Smart Phones, digital cameras, Projector(s) and Smart Board(s) will be reviewed by CTDOT District personnel. The Multifunction Laser Printer/Copier/Scanner/Fax will be reviewed by the CTDOT OIS. The Contractor shall not purchase the hardware, software, or services until the Administering CTDOT District informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi, Wi-Fi printer, and the configuration of the wireless router as directed by the CTDOT. Installation will be coordinated with CTDOT District and Project personnel.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the CTDOT administering District, a minimum of 2 working days in advance of the proposed delivery or installation of the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors and Smart Board(s), as well as associated hardware, software, supplies, and support documentation.



The Contractor shall provide all supplies, paper, maintenance, service and repairs (including labor and parts) for the Wi-Fi printers, copiers, field office Wi-Fi, fax machines and other equipment and facilities required by this specification for the duration of the Contract. All repairs must be performed within 48 hours. If the repairs require more than 48 hours then an equal or better replacement must be provided.

Once the Contract has been completed, the hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply install and maintain a rain gauge for the duration of the project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rain water from the top of the post into the rain gauge. The Location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

- A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
- B) Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.
- C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

All testing equipment will remain the property of the Contractor at the completion of the project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars (\$5,000) in order to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the CTDOT shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The CTDOT will be responsible for all maintenance costs of CTDOT owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement

equipment within seven days, the CTDOT may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the Contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the CTDOT will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

**Maintenance:** During the occupancy by the CTDOT, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

**Method of Measurement:** The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

**Basis of Payment:** The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for "Construction Field Office, (Type)," which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements of this specified this specification.

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Field Office, (Type)	Month

## **ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC**

### **Article 9.71.01 – Description is supplemented by the following:**

The Contractor shall maintain and protect traffic as described by the following and as limited in the Special Provision "Prosecution and Progress":

#### **Route 15 (Merritt Parkway)**

The Contractor shall maintain and protect the minimum number of through lanes and shoulders as dictated in the Special Provision for Section 1.08 - Prosecution and Progress "Limitations of Operations –Maximum Number of Lanes Allowed to be Closed and Hours Allowed for a Rolling Roadblock" Charts, on a paved travel path not less than 12 feet in width per lane.

During Stage Construction, existing traffic operations will be considered to be as shown on the Stage Construction plans contained in the project plans; or as shown on the Typical Traffic Shift Plans contained in the special provision for Item No. 0971001A.

The Contractor shall be allowed to halt traffic for a period of time not to exceed 10 minutes to perform necessary work as approved by the Engineer. If more than one 10-minute period is required, the Contractor shall allow all stored vehicles to proceed through the work area prior to the next stoppage.

#### **All Ramps and Turning Roadways (Allowable Closures)**

During the allowable periods, when the Contractor is actively working, the Contractor shall be allowed to close any ramp or turning roadway where the available width is less than 28 feet and detour traffic.

The Contractor shall provide District 3 Construction, the city or town(s) within which the closure will occur, and all emergency services within that city or town at least two weeks notice prior to the first closure. Subsequent closures shall require a one week notice unless any party requests additional advanced notice.

#### **Merritt Parkway Southbound Exit 40B Off-Ramp to Creeping Hemlock Drive**

The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 12 feet in width.

#### **Merritt Parkway Northbound On-Ramp from Main Avenue Northbound**

The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 12 feet in width.

**All Other Ramps and Turning Roadways**

The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 12 feet in width.

\*\*\*\*\*

**Bridge No. 00724 – Grumman Avenue over Merritt Parkway**

The Contractor shall maintain and protect one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet and there shall be no more than one alternating one-way traffic operation within the project limits without prior approval of the Engineer.

The Contractor shall be permitted to maintain and protect at least an alternating one-way traffic operation controlled by temporary signalization, in accordance with the Temporary Signalization plans contained in the contract plans.

**S.R. 719 (Main Avenue)**

The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 12 feet in width.

Where turn lanes exist, the Contractor shall provide an additional 10 feet of paved travel path to be used for turning vehicles only. This additional 10 feet of travel path shall be a minimum length of 150 feet. It shall be implemented so that sufficient storage, taper length, and turning radius are provided.

**All Other Roadways**

The Contractor shall maintain and protect one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a

minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 12 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet and there shall be no more than one alternating one-way traffic operation within the project limits without prior approval of the Engineer.

### **Commercial and Residential Driveways**

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the project limits. The Contractor will be allowed to close said driveways to perform the required work during those periods when the businesses are closed, unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

### **Article 9.71.03 - Construction Method is supplemented as follows:**

#### **General**

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (work night), or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of active construction work on overhead signs and structures, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken. At no time shall an overhead sign be left partially removed or installed.

When an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

Construction vehicles entering travel lanes at speeds less than the posted speed are interfering with traffic, and shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at posted speeds, in order to merge with existing traffic.

### **Existing Signing**

The Contractor shall maintain all existing overhead and side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and install temporary sign supports if necessary and as directed by the Engineer.

### **Requirements for Winter**

The Contractor shall schedule a meeting with representatives from the Department including the offices of Maintenance and Traffic, and the Town/City to determine what interim traffic control measures the Contractor shall accomplish for the winter to provide safety to the motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

### **Signing Patterns**

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

### **Pavement Markings - Limited Access Highways, Turning Roadways and Ramps**

During construction, the Contractor shall maintain all pavement markings throughout the limits of the Project.

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

### **Temporary Pavement Markings**

Temporary pavement markings shall consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include 4 inch wide white lane lines (solid and broken), 4 inch wide edge lines, lane-use arrows at the stop bar. Temporary 12 inch wide white stop bars shall consist of temporary pavement marking tape, as described below.

Refer to Pavement Marking Groove special provisions for pavement marking requirements.

Temporary 12 inch wide white stop bars consisting of temporary plastic pavement marking tape shall be installed on exit ramps if permanent Epoxy Resin Pavement Markings are not installed by the end of the work shift on the final course of bituminous concrete pavement. Temporary stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape is included under the applicable temporary pavement marking items.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

### **Final Pavement Markings**

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be paid for under the appropriate pay items.

### **Pavement Markings - Non-Limited Access Roadways**

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the Project.

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

### **Temporary Pavement Markings**

Temporary pavement markings that will be in place for less than 72 continuous hours may consist of temporary plastic pavement marking tape at the Contractor's expense. Additionally;

1. These temporary pavement markings shall include centerlines, lane lines (solid and broken), and stop bars.
2. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 inches apart, at 40 foot intervals.
3. Lane lines shall consist of 4 inch wide white markings, 2 feet in length, at 40 foot intervals.
4. No passing zones shall be posted with signs in those areas where the final centerlines have not been established on two-way roadways.
5. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side.
6. The temporary plastic pavement marking tape shall be installed in accordance with Section 12.12.
7. The Contractor shall remove and dispose of the temporary plastic pavement marking tape prior to another course of bituminous concrete pavement being installed.

Temporary pavement markings that will be in place for 72 continuous hours or more should consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include centerlines, edge lines, lane lines (solid and broken), lane-use arrows, and stop bars on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift. Edge lines and lane-use arrows are not required if the next course of bituminous concrete pavement will be placed within 10 calendar days.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

### **Final Pavement Markings**

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.



## **Traffic Control During Construction Operations**

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for a safer and more efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

### **Traffic Control Patterns**

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder or is within the clear zone. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic.
- Duration of operation.
- Exposure to hazards.

Traffic control patterns shall be uniform, neat, and orderly in order to command respect from the motorist.

Lane reduction tapers should be placed so that the entire length of the taper is installed on a tangent section of roadway and the entire taper area can be seen by the motorist.

All existing conflicting signs shall be removed, covered with an opaque material, or turned so that they are not legible to oncoming traffic prior to implementing a traffic control pattern. The existing signs shall be uncovered or reinstalled once the pattern is removed.

A buffer area should be provided during installation of a traffic control pattern and maintained for the duration of the work. The buffer area shall be free of any equipment, workers, materials, and parked vehicles.

Construction Traffic Control Plans 19 through 25 should be used for moving operations such as line striping, rumble strips, pothole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns are not required for vehicles on an emergency patrol type activity or for a short duration stop of up to one hour, as long as the equipment is contained within the shoulder. Flashing lights, arrow boards, truck-mounted or trailer-mounted impact attenuators, and appropriate Trafficperson(s) shall be used when required.

In a situation not adequately covered by the Construction Traffic Control Plans, the Contractor shall contact the Engineer for assistance prior to setting up a traffic control pattern.

### **Placement of Signs**

Signs shall be placed in a position that allows motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads) where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

### **Allowable Adjustment of Signs and Devices Shown on the Construction Traffic Control Plans**

The Construction Traffic Control Plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans.

The proper application of the Construction Traffic Control Plans and installation of traffic control devices is dependent upon actual field conditions.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

Adjustments to the Construction Traffic Control Plans shall only be made at the direction of the Engineer.

Table 1 indicates the minimum taper lengths required for a lane closure based on the posted speed limit and lane width of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the Construction Traffic Control Plans cannot be achieved.

**Table 1 – Minimum Taper Length**

POSTED SPEED LIMIT (MPH)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE (FEET)	
	FREEWAYS	SECONDARY ROADS
30 OR LESS	180	165
35	245	225
40	320	295
45	540	495
50	600	550
55	660	605
65	780	715

## **1. Work Zone Safety Meetings**

- 1.a) Prior to the commencement of work, a Work Zone Safety Meeting shall be conducted with representatives from DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the Project. DOT Traffic Engineering shall be invited to the Work Zone Safety Meeting. Other Work Zone Safety Meetings during the course of the Project should be scheduled as needed.
- 1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the Meeting to outline the anticipated traffic control issues during the construction of this Project. Any issues that can't be resolved at these Meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda shall include:
  - i. Review Project scope of work and time;
  - ii. Review Section 1.08, Prosecution and Progress;
  - iii. Review Section 9.70, Trafficpersons;
  - iv. Review Section 9.71, Maintenance and Protection of Traffic;
  - v. Review Contractor's schedule and method of operations;
  - vi. Review special concern areas: ramps, turning roadways, medians, lane drops, etc.;
  - vii. Open discussion of work zone questions and issues;
  - viii. Discussion of review and approval process for changes in Contract requirements as they relate to work zone areas.

## **2. General**

- 2.a) Traffic control patterns shall only be installed if the required minimum number of signs, traffic cones, traffic drums, and other equipment (i.e. one Arrow Board for each lane closed, two Truck-Mounted or Trailer-Mounted Attenuators (TMAs), Changeable Message Sign, etc.) are on Site.
- 2.b) The Contractor shall have spare maintenance and protection of traffic equipment (TMAs, Arrow Board, Changeable Message Sign(s), construction signs, traffic cones, traffic drums, etc.) available at all times in case of mechanical failures, etc. Spare maintenance and protection of traffic equipment installed as a result of a sudden equipment breakdown shall be replaced by the Contractor within 24 hours.
- 2.c) Failure of the Contractor to have the required minimum number of signs, personnel, and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for lost time.

- 2.d) In cases of differences of opinion between the Contractor and the Inspection staff, the Contractor shall follow the directions of the Engineer. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

### **3. Installing and Removing Traffic Control Patterns**

- 3.a) Lane closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.
- 3.b) Lane closures shall be removed in the reverse order, beginning at the end of the work area, or traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed within the allowable hours stated in Section 1.08.04:
  - i. For those activities stated within the Contract.
  - ii. During paving, milling operations, or similar activities where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway so traffic does not travel across the longitudinal joint or difference in roadway elevation.
  - iii. To move slow moving equipment across live traffic lanes into the work area.
- 3.d) The Contractor shall adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.e) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging with or exiting from the mainline traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.f) Workers are prohibited from crossing the travel lanes on limited access roadways to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

### **4. Implementation of Rolling Road Block (RRB)**

- 4.a) Temporary road closures using a RRB may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:
  - i. Refer to the Limitation of Operations Chart provided in Section 1.08.04 for the hours allowed for implementing a RRB operation. The Contractor shall only implement a RRB operation within the hours shown in the Chart.
  - ii. In areas with good sight lines and full shoulders, signs on the side of the road opposite the traffic pattern should be installed in a separate operation.

- iii. TMAs equipped with Arrow Boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including TMAs and police vehicles, leave the shoulder or on-ramp and accelerate to normal roadway speeds in each lane. The vehicles will then position themselves side by side and decelerate to the RRB speed on the highway.
- iv. A Pre-Warning Vehicle, as specified elsewhere in the Contract, shall be used to advise the motorists that sign pattern installation or removal is underway.
- v. The RRB duration shall not exceed 15 minutes from the start of the traffic block until all lanes are opened as designated in the Limitation of Operations chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the District.
- vi. RRB shall not be used to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. TMAs (and State Police if available) shall be used to protect the workers installing the taper in the additional lane.
- vii. Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days shall be allowed for review and comment by the District.
- viii. The Engineer and the Contractor will review and discuss the RRB procedures (including any revisions) in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety Meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, then the work will proceed as recommended by the Department. Any unresolved issues shall be addressed the following day.

## **5. Use of Arrow Boards**

- 5.a) On limited access roadways, one Arrow Board shall be used for each lane that is closed. The Arrow Board shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the Construction Traffic Control Plans. Additional Arrow Boards shall be deployed if sight distances are limited.
- 5.b) On non-limited access roadways, the use of an Arrow Board for lane closures is optional. The roadway geometry, sight distance, and traffic volume shall be considered in the decision to use the Arrow Board.
- 5.c) A vehicle displaying an arrow board shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.

- 5.d) The flashing arrow mode shall be used for lane closure (merge) tapers.
- 5.e) The flashing arrow mode shall not be used for temporary alternating one-way traffic operations or to laterally shift lanes of traffic.
- 5.f) The flashing double arrow mode shall only be used for closing a center lane on a multilane roadway where adjacent left and right lanes remain open.
- 5.g) For shoulder work or roadside work near the shoulder, the Arrow Board shall be positioned in the shoulder and the flashing alternating diamond mode should be used.
- 5.h) The flashing alternating diamond caution mode should also be used when supplemental Arrow Boards are positioned in an already closed lane.

#### **6. Use of Truck-Mounted or Trailer-Mounted Impact Attenuators (TMAs)**

- 6.a) On limited access roadways, lane closures shall use a minimum of two TMAs to install and remove traffic control patterns. If two TMAs are not available, then the pattern shall not be installed.
- 6.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to utilize the TMAs.
- 6.c) On limited access roadways, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane to establish the advance and transition signing. The Arrow Board mounted on the TMA shall be in the arrow mode when taking the lane. The sign truck and workers shall be at sufficient distance ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Portable Changeable Message Signs, signs, Arrow Boards, and cones/drums are installed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when traveling in the closed lane.
- 6.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when in the closed lane.
- 6.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to Section 18.06. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the

specified distances. In these situations, the TMA(s) shall be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

- 6.f) TMAs will be paid for in accordance with how the unit is used. If it is used as a TMA and is in the proper location as specified, then it will be paid for at the specified hourly rate for Truck-Mounted or Trailer-Mounted Impact Attenuator. When the TMA is used as an Arrow Board, it will be paid for at the daily rate for Arrow Board. If a TMA is used to install and remove a pattern and is also used as an Arrow Board in the same day, then the unit will be paid for as a Truck-Mounted or Trailer-Mounted Impact Attenuator for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as an Arrow Board during the same day, then the unit will only be paid for at the daily rate as an Arrow Board.

## **7. Use of Traffic Drums and Traffic Cones**

- 7.a) On limited-access highways, ramps, and turning roadways:
  - i. Traffic drums shall be used for taper channelization.
  - ii. Traffic drums shall be used to delineate raised catch basins and other hazards.
  - iii. Traffic cones with a minimum height of 42 inches may be used in place of drums in the tangent section of a closed lane or shoulder.
  - iv. Traffic cones less than 42 inches in height shall not be used.
- 7.b) On all roadways:
  - i. Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
  - ii. Traffic cones shall not be left unattended.
  - iii. Traffic cones with a minimum height of 42 inches shall be used when the posted speed limit is 45 MPH or above.
- 7.c) Typical spacing of traffic drums and/or cones shown on the Construction Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

## **8. Use of Barricade Warning Lights**

- 8.a) Barricade Warning Lights may be installed on channelizing devices when used in a merge taper. The Barricade Warning Lights shall flash in a sequential pattern when used in a merge taper. The successive flashing shall occur from the upstream end (beginning) of the merge taper to the downstream end (end) of the merge taper.
- 8.b) Type C Barricade Warning Lights may be used at night to delineate the edge of the travel way.
- c) Type B Barricade Warning Lights shall be used on post-mounted advanced warning signs.

## 9. Use of Portable Changeable Message Signs (PCMS)

- 9.a) On limited access roadways, one PCMS shall be used in advance of the traffic control pattern for all lane closures. Prior to installing the pattern, the PCMS shall be installed and in operation, displaying the appropriate lane closure information. The PCMS shall be positioned ½ to 1 mile ahead of the start of the lane closure taper. If the distance to the nearest exit ramp is greater than the specified ½ to 1 mile distance, then an additional PCMS shall be positioned a sufficient distance ahead of the exit ramp (and before the previous on-ramp where practical) to alert motorists to the work and therefore offer them an opportunity to take the exit.
- 9.b) On non-limited access roadways, the use of PCMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to use the PCMS.
- 9.c) PCMS should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the PCMS, it should be placed off the shoulder and outside of the clear zone. If a PCMS has to be placed on the shoulder of the roadway or within the clear zone, it should be placed on the paved shoulder with a minimum of five traffic drums placed in a taper in front of it to delineate its position. The taper shall meet minimum distance requirements for a shoulder closure. The PCMS shall be protected if it is used for a continuous duration of 36 hours or more.
- 9.d) The PCMS shall be removed from the clear zone and have the display screen cleared and turned 90 degrees away from the roadway when the PCMS is no longer required.
- 9.e) The PCMS should not be used within 1,000 feet of an existing PCMS or Variable Message Sign (VMS).
- 9.f) A PCMS message shall:
  - i. consist of no more than two phases;
  - ii. contain no more than three lines of text per phase;
  - iii. have no more than eight characters per line, including spaces.
- 9.g) The PCMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs. The PCMS should not be used for generic messages (ex.: Road Work Ahead, Bump Ahead, Gravel Road, etc.) or for messages that need to be displayed for long periods of time, such as during stage construction. These types of messages should be displayed with construction signs. Special signs shall be coordinated with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.
- 9.h) Typical messages that are allowed on the PCMS are shown below. Approval must be received from the Office of Construction for any message(s) different than the typical messages shown in Figure 1.
- 9.i) All messages shall comply with the information provided in Tables 2 and 3.



	<u>Phase 1</u>	<u>Phase 2</u>	<u>Message No.</u>	<u>Phase 1</u>	<u>Phase 2</u>
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	EXIT XX CLOSED	USE EXIT YY
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	EXIT XX CLOSED USE YY	FOLLOW DETOUR
5	RIGHT LANE CLOSED	MERGE LEFT	13	2 LANES SHIFT AHEAD	USE CAUTION
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	3 LANES SHIFT AHEAD	USE CAUTION
7	RIGHT LANE CLOSED	REDUCE SPEED			
8	2 RIGHT LANES CLOSED	REDUCE SPEED			

**Figure 1: Typical PCMS Messages**

**Table 2: Acceptable Abbreviations**

<b>Word Message</b>	<b>Standard Abbreviation</b>	<b>Word Message</b>	<b>Standard Abbreviation</b>
Access	ACCS	Minimum	MIN
Afternoon / Evening	PM	Minor	MNR
Ahead	AHD	Minute(s)	MIN
Alternate	ALT	Monday	MON
Avenue	AVE, AV	Morning / Late Night	AM
Bicycle	BIKE	Mount	MT
Blocked	BLKD	Mountain	MTN
Boulevard	BLVD	National	NATL
Bridge	BR	Normal	NORM
CB Radio	CB	North	N
Center	CTR	Northbound	NBND
Center	CNTR	Oversized	OVRSZ
Chemical	CHEM	Parking	PKING
Circle	CIR	Parkway	PKWY
Compressed Natural Gas	CNG	Pavement	PVMT
Condition	COND	Pedestrian	PED
Congested	CONG	Place	PL
Construction	CONST	Pounds	LBS
Court	CT	Prepare	PREP
Crossing	XING	Quality	QLTY
Crossing (other than highway-rail)	XING	Right	RT
Downtown	DWNTN	Road	RD
Drive	DR	Roadwork	RDWK
East	E	Route	RT, RTE
Eastbound	EBND	Saint	ST
Electric Vehicle	EV	Saturday	SAT
Emergency	EMER	Service	SERV
Entrance, Enter	ENT	Shoulder	SHLDR
Exit	EX	Slippery	SLIP
Express	EXP	South	S
Expressway	EXPWY	Southbound	SBND
Feet	FT	Speed	SPD
Freeway	FRWY, FWY	State, county, or other non-US or non-Interstate numbered route	[Route Abbreviation determined by highway agency]**
Friday	FRI	Street	ST
Frontage	FRNTG	Sunday	SUN
Hazardous	HAZ	Telephone	PHONE
Hazardous Material	HAZMAT	Temporary	TEMP
High Occupancy Vehicle	HOV	Terrace	TER
Highway	HWY	Thruway	THWY
Highway-Rail Grade Crossing	RR XING	Thursday	THURS

Hospital	HOSP	Tons of Weight	T
Hour(s)	HR, HRS	Traffic	TRAF
Information	INFO	Trail	TR
International	INTL	Travelers	TRVLRS
Interstate	I-	Tuesday	TUES
Junction / Intersection	JCT	Turnpike	TPK
Lane	LN	Two-Way Intersection	2-WAY
Left	LFT	Two-Wheeled Vehicles	CYCLES
Liquid Propane Gas	LP-GAS	Upper	UPR
Local	LOC	US Numbered Route	US
Lower	LWR	Vehicle(s)	VEH, VEHS
Maintenance	MAINT	Warning	WARN
Major	MAJ	Wednesday	WED
Maximum	MAX	West	W
Mile(s)	MI	Westbound	WBND
Miles Per Hour	MPH		

\*\* A space and no dash shall be placed between the abbreviation and the number of the route.

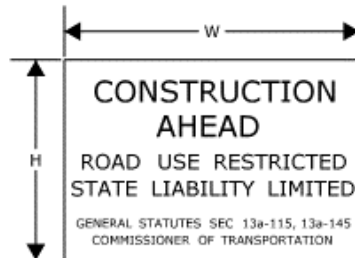
**Table 3: Unacceptable Abbreviations**

<b>Unacceptable Abbreviation</b>	<b>Intended Word</b>	<b>Common Misinterpretation</b>
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

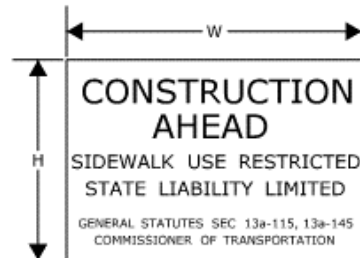
## **10. Use of State Police Officers**

- 10.a) State Police may be used only on limited access highways and secondary roadways that are under their primary jurisdiction. A minimum of one Officer may be used per critical sign pattern; however, a State Police presence is not required. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Left lane closures may also be implemented without State Police presence in areas with only moderate traffic and wide, unobstructed medians. It may be desirable to have a State Police presence, when available, under specific situations, such as nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur; however, they are not required.
- 10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall reposition so that they are located prior to the backup. The State Police Officer should not be located immediately behind or within the roll ahead area of any TMA or within the work zone buffer area. The State Police Officer shall not be positioned in such a way that the State Police Officer obstructs any construction warning signs or PCMS from view of the motorist.
- 10.c) Other functions of the State Police Officer(s) may include:
  - i. Assisting construction vehicles entering and exiting the work area.
  - ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.
- 10.d) State Police Officers assigned to a work site shall take direction from the Engineer.

## SERIES 16 SIGNS



		W	H
16-E	80-1605	84" x 60"	
16-H	80-1608	60" x 42"	
16-M	80-1613	30" x 24"	



		W	H
16-S	80-1619	48" x 30"	

SIGN 16-S SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS. SERIES 16 SIGNS SHOULD BE LOCATED TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHOULD BE INSTALLED ON MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHOULD BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMP PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

CONSTRUCTION TRAFFIC CONTROL PLAN  
**SERIES 16 SIGNS**

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Tracy L. Fogarty*  
PRINCIPAL ENGINEER

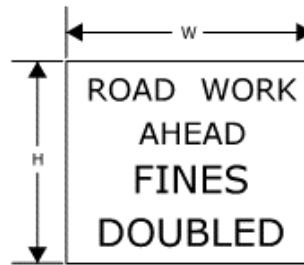
Tracy L. Fogarty, P.E.  
2019.10.09 16:30:32-0400

## REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

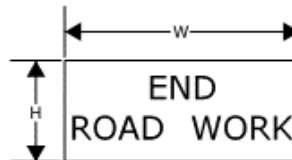
	W	H
31-1906	48" x 42"	
31-1907	60" x 54"	



## "END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN SHALL BE THE "END ROAD WORK" SIGN.

	W	H
80-9606	36" x 18"	
80-9612	48" x 24"	



CONSTRUCTION TRAFFIC CONTROL PLAN  
ROAD WORK AHEAD  
SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Tracy L. Fogarty*  
PRINCIPAL ENGINEER

Tracy L. Fogarty, P.E.  
2019.08.12 15:56:44 04/007

## NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED IN ADVANCE TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.
5. ALL CONFLICTING SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 48 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT  $\leq$  40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180'
35	245'
40	320'
45	540'
50	600'
55	660'
65	780'

CONSTRUCTION TRAFFIC CONTROL PLAN

### NOTES

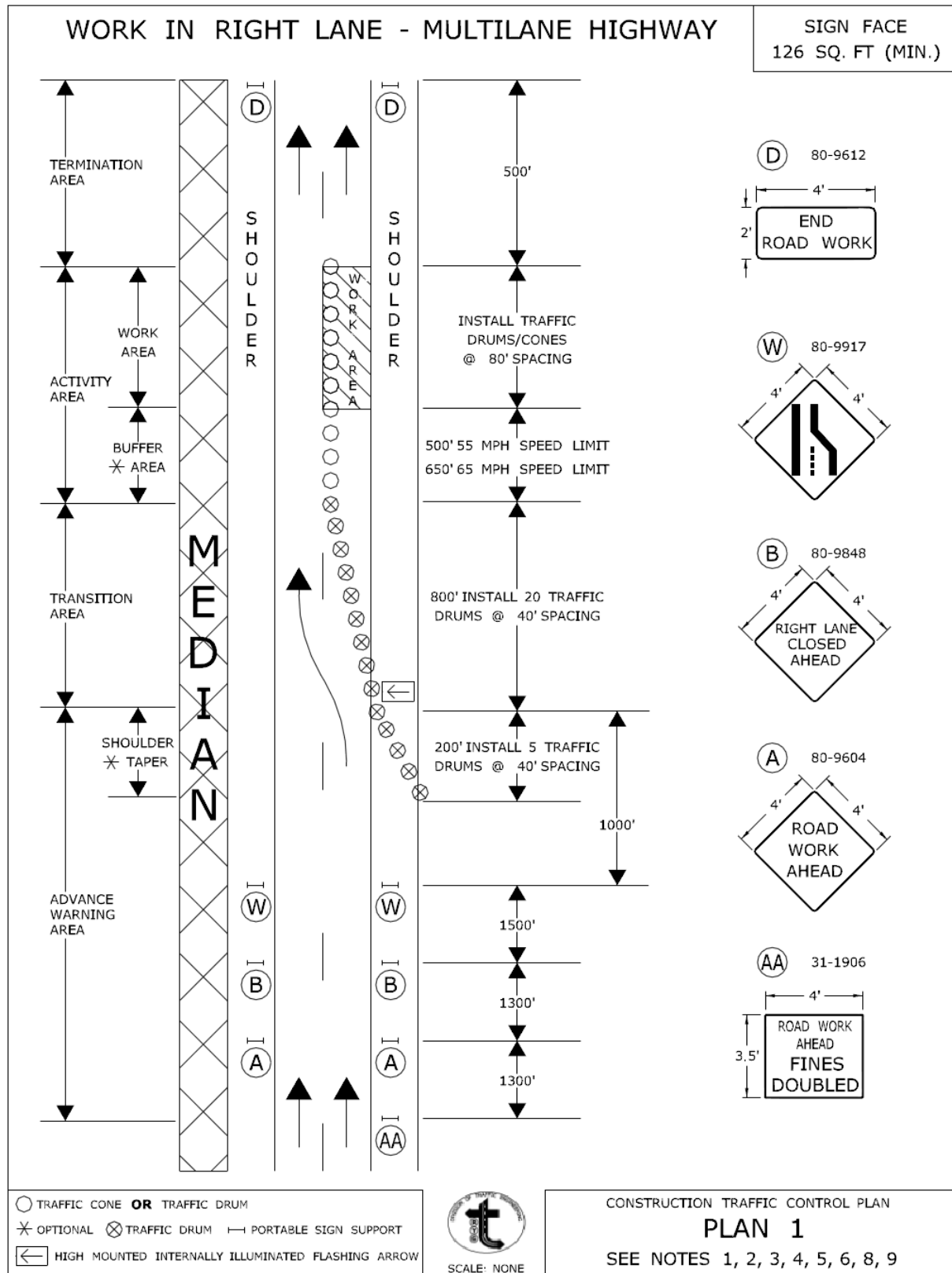
SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Tracy L. Fogarty*  
PRINCIPAL ENGINEER

Tracy L. Fogarty, P.E.  
2019.05.13 06:47:47-0400

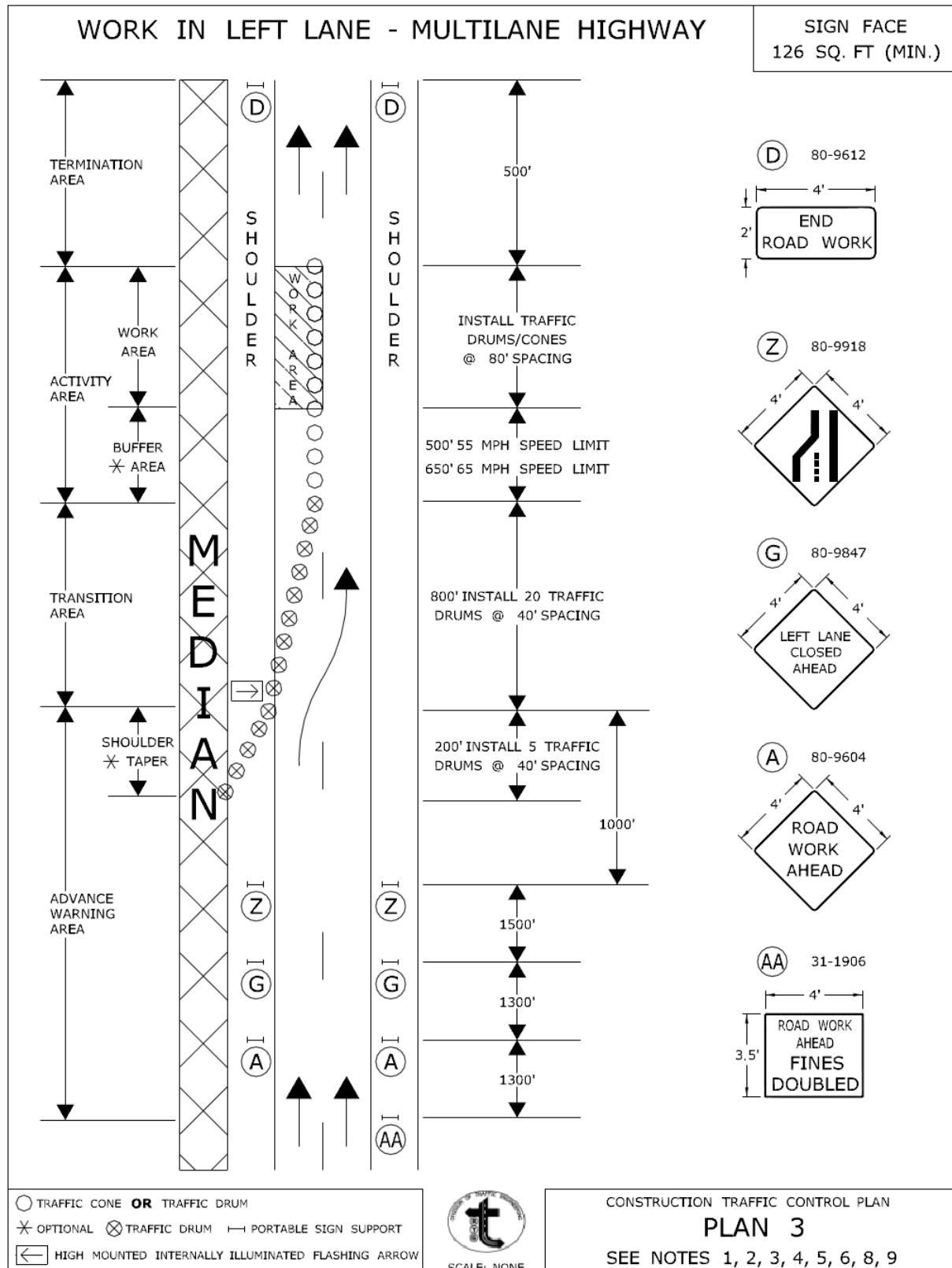


CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

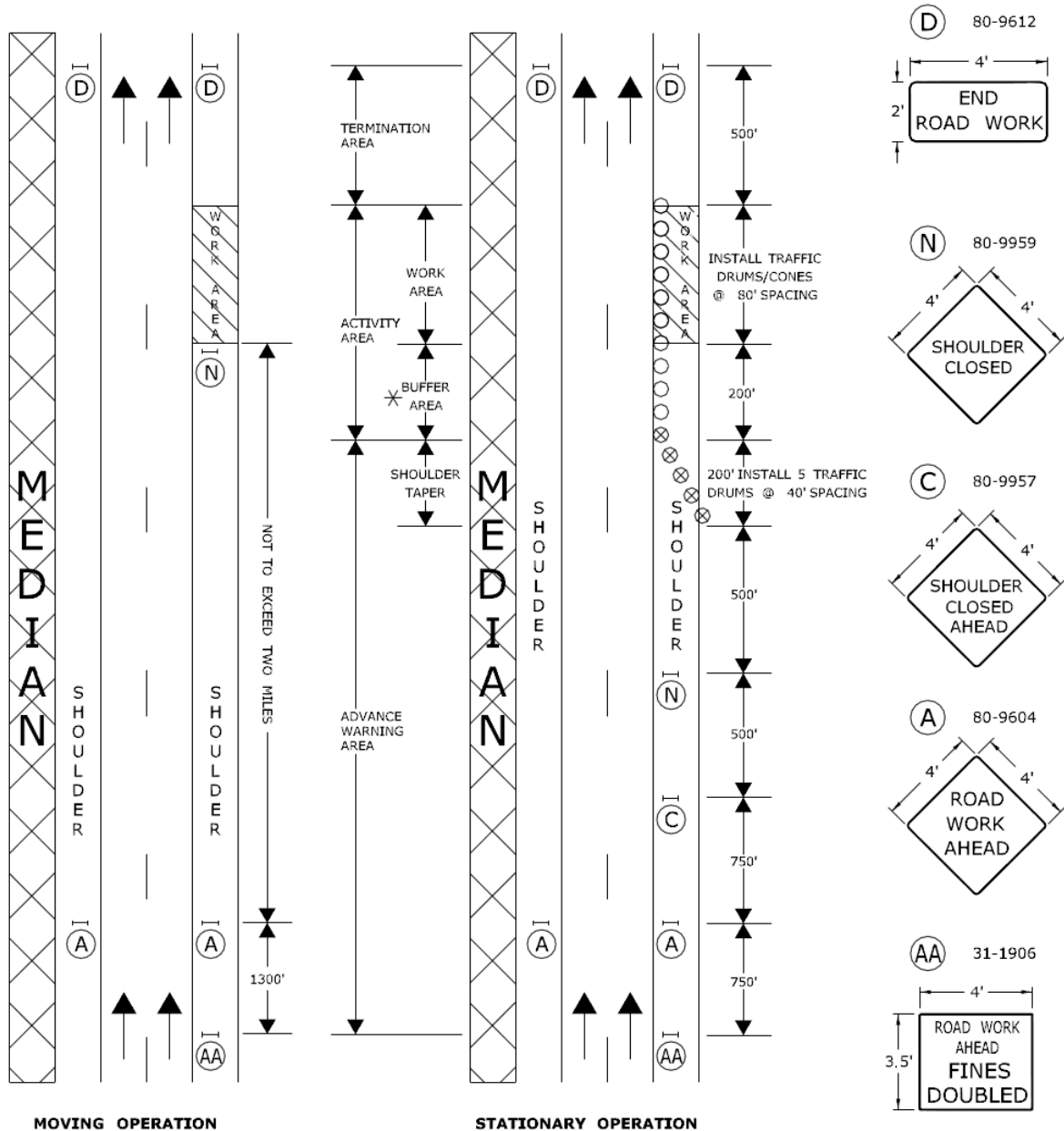
*Charles S. Harlow*  
Charles S. Harlow  
2012.06.05 15:51:00-0400  
PRINCIPAL ENGINEER





# WORK IN SHOULDER AREA - MULTILANE HIGHWAY

SIGN FACE  
94 SQ. FT (MIN.)



○ TRAFFIC CONE **OR** TRAFFIC DRUM  
 ✱ OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT  
 ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

**PLAN 6**

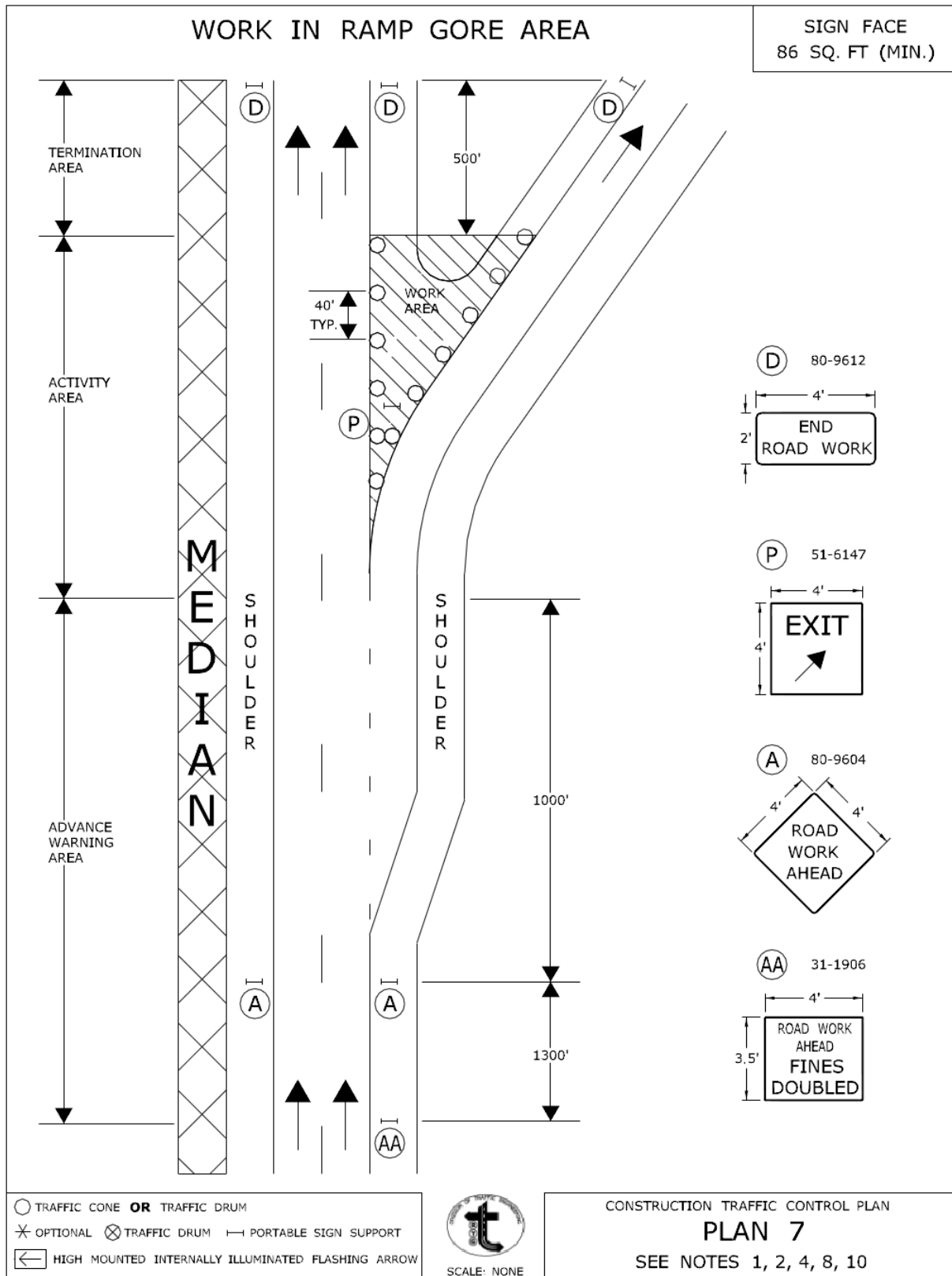
SEE NOTES 1, 2, 4, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

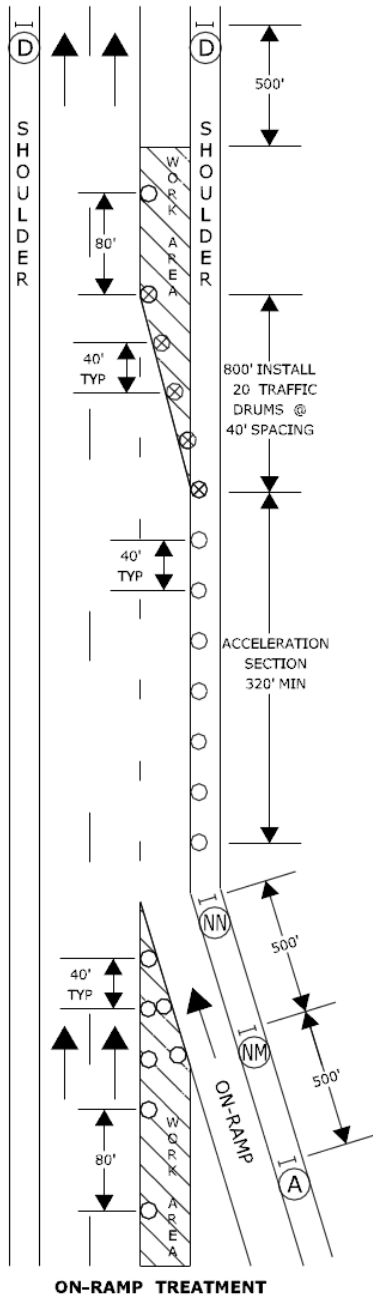
*Charles S. Harlow*  
PRINCIPAL ENGINEER

Charles S. Harlow  
2012.06.05 15:52:38-04'00'

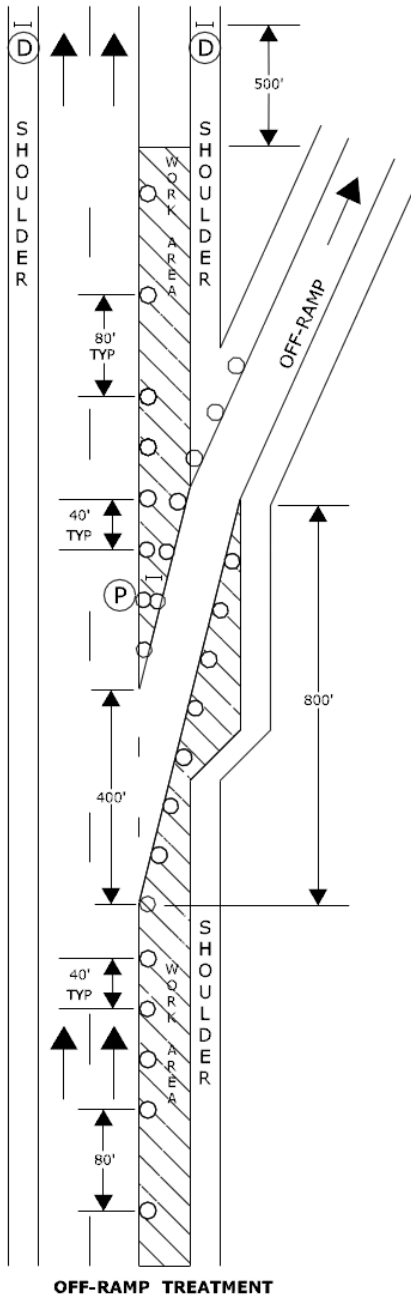


# TYPICAL RAMP TREATMENTS FOR MAINLINE LANE CLOSURE - MULTILANE HIGHWAY

SIGN FACE  
SQ. FT VARIES

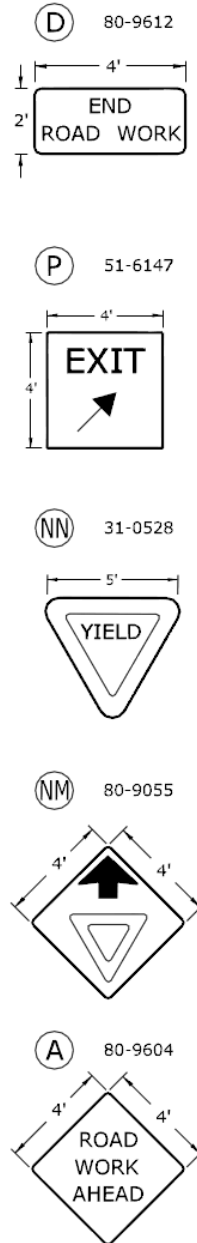


ON-RAMP TREATMENT



OFF-RAMP TREATMENT

USE TRAFFIC CONTROL PLAN 1 TO CLOSE THE RIGHT LANE



- TRAFFIC CONE OR TRAFFIC DRUM
- \* OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 8

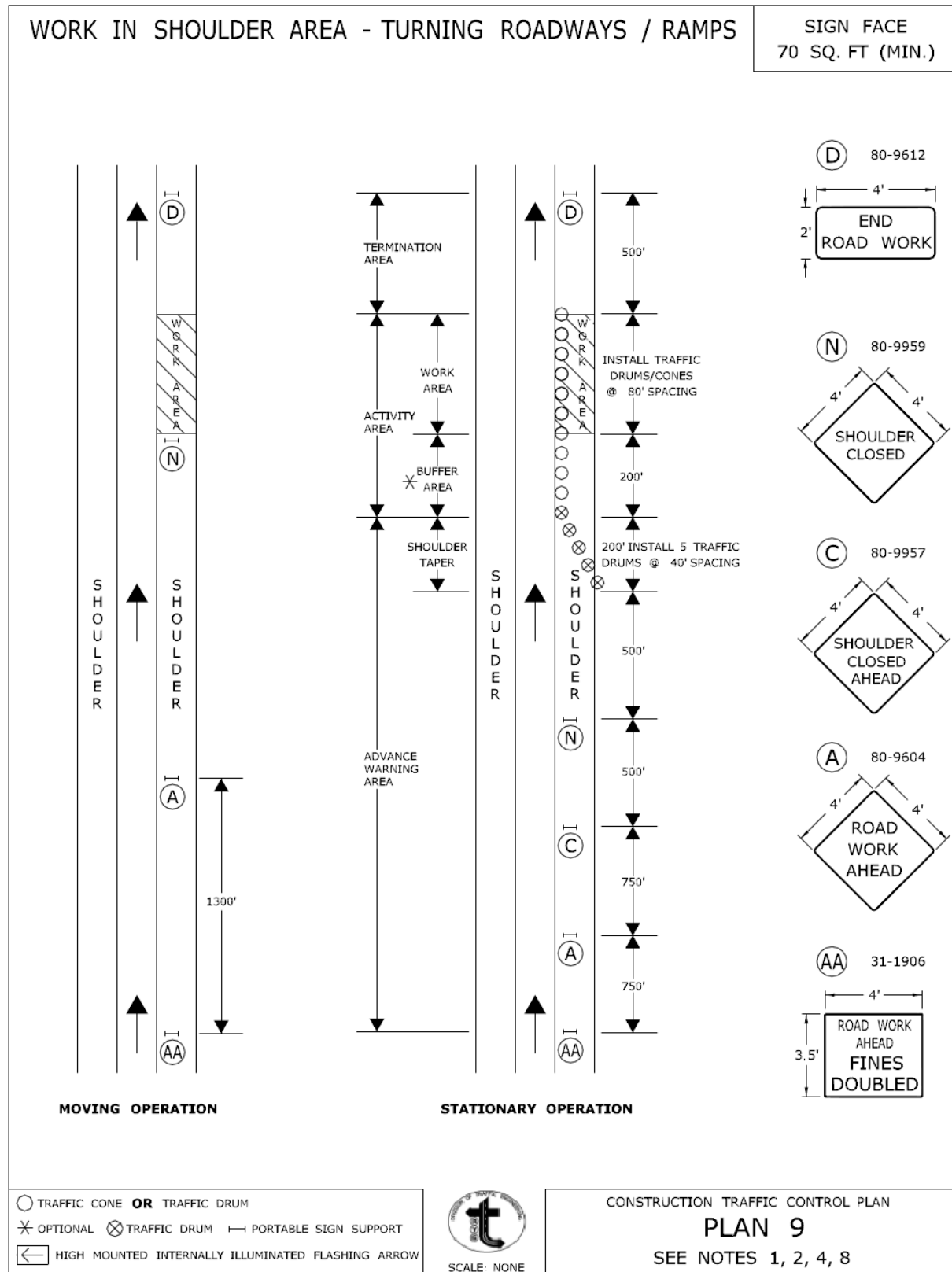
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9, 10

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

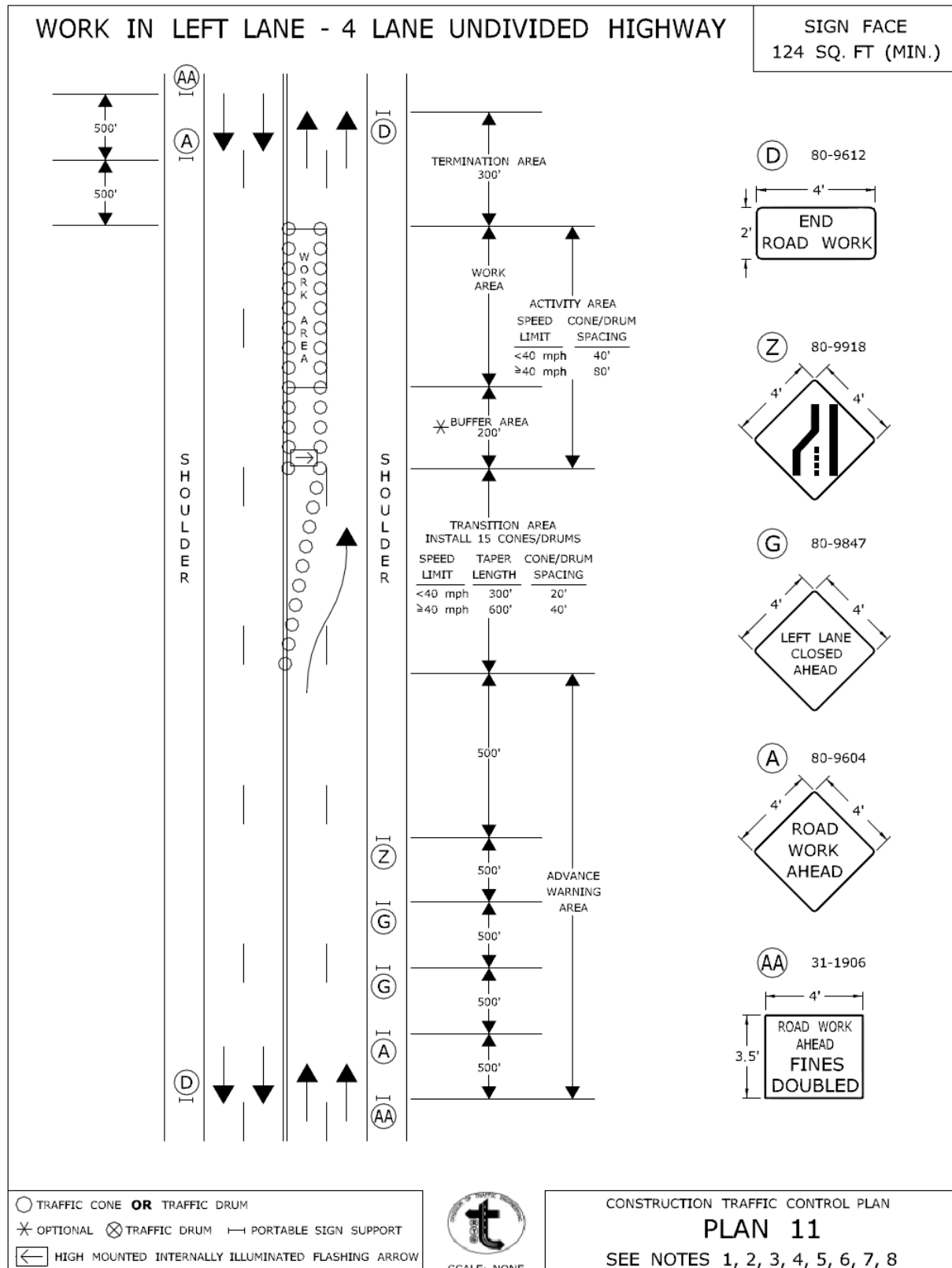
APPROVED

*Charles S. Harlow*  
PRINCIPAL ENGINEER

Charles S. Harlow  
2012.06.05 15:53:31-0400'



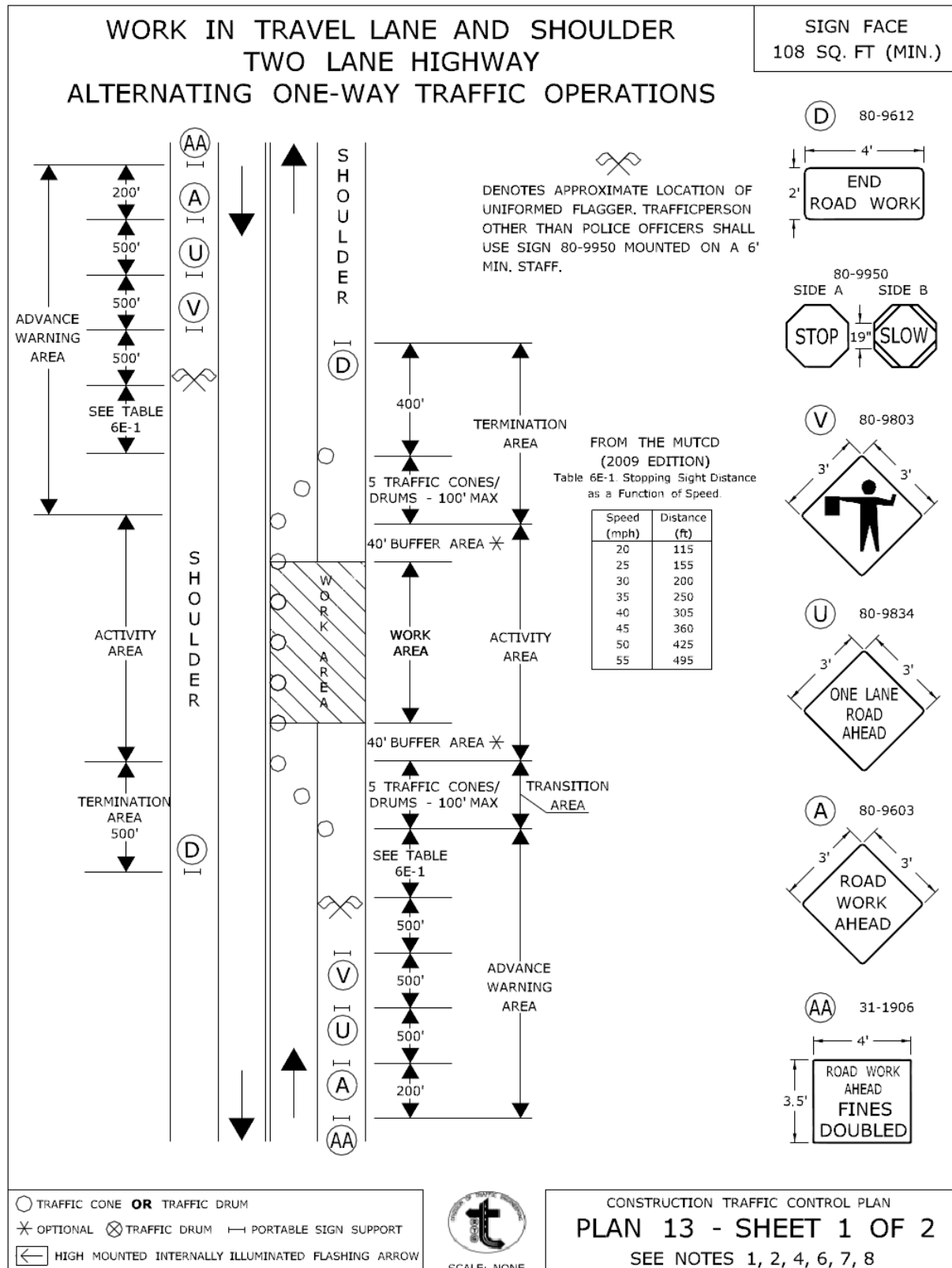




CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Charles S. Harlow*  
Charles S. Harlow  
2012.06.05 15:54:36-0400  
PRINCIPAL ENGINEER



CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Charles S. Harlow*  
2012.06.05 15:55:23-04'00"  
PRINCIPAL ENGINEER



# WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE  
108 SQ. FT (MIN.)

## HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

### A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



### B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



### C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



○ TRAFFIC CONE **OR** TRAFFIC DRUM  
✱ OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT  
◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

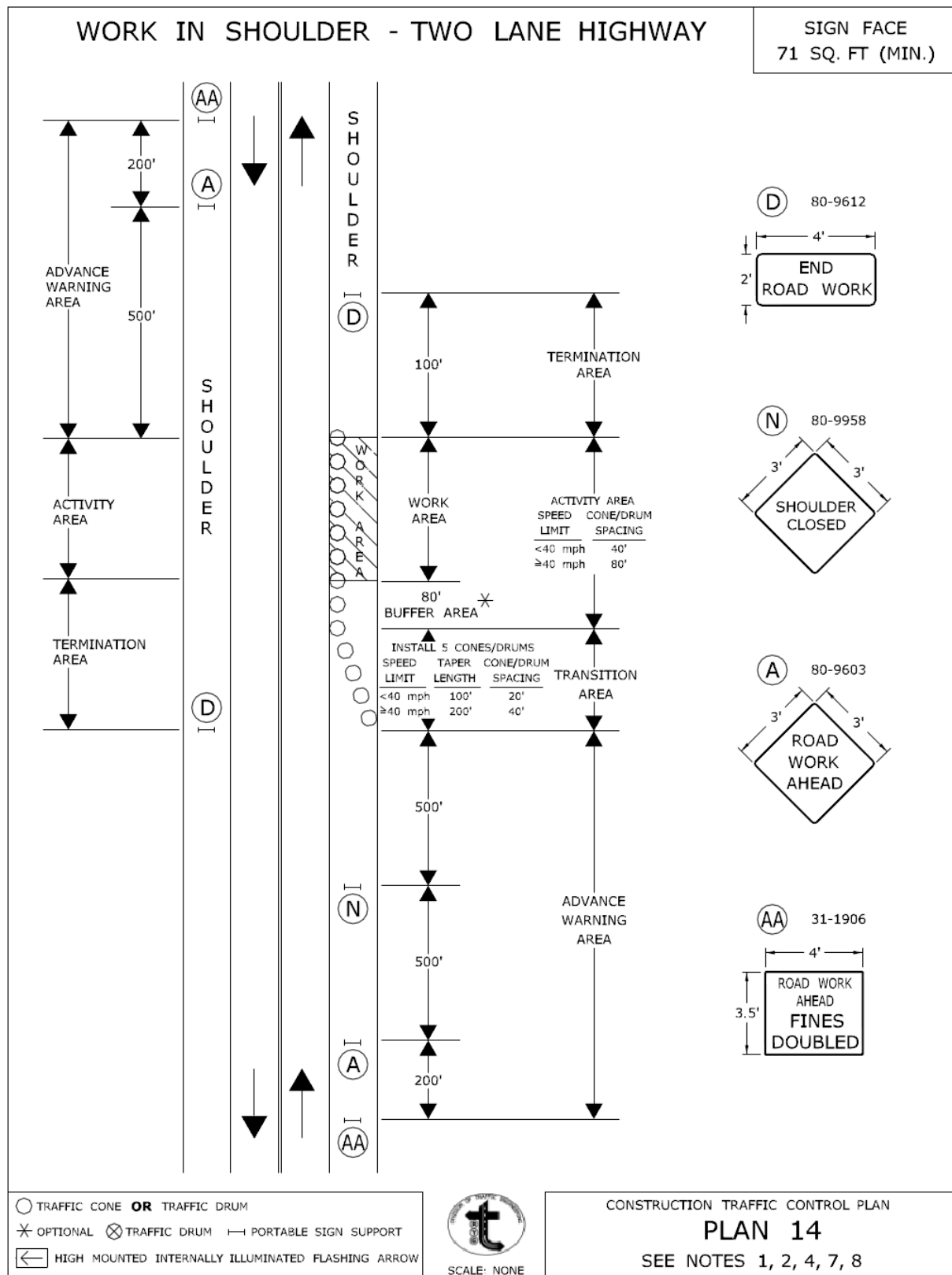
CONSTRUCTION TRAFFIC CONTROL PLAN  
**PLAN 13 - SHEET 2 OF 2**  
SEE NOTES 1, 2, 4, 6, 7, 8

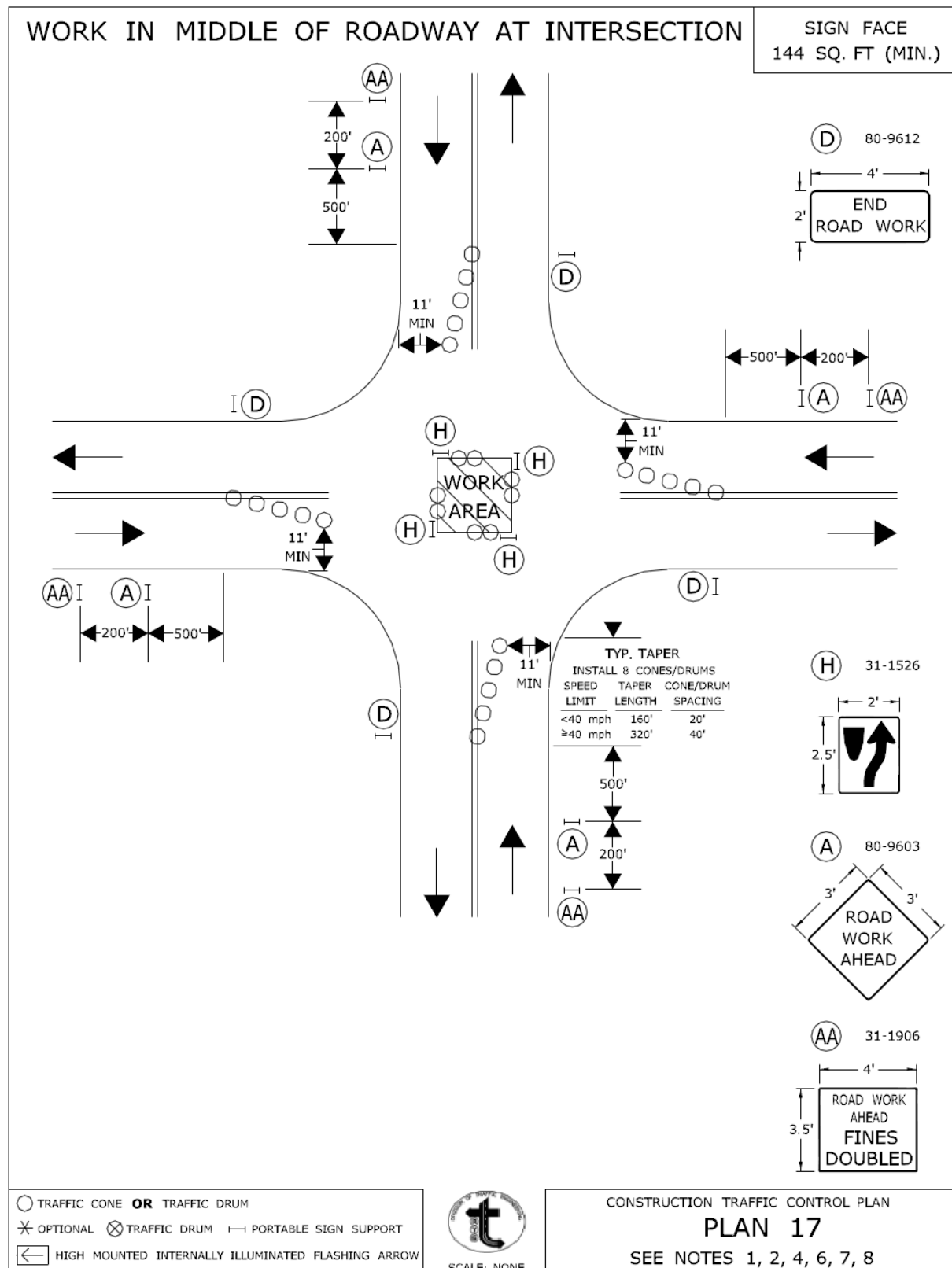
CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Charles S. Harlow*  
PRINCIPAL ENGINEER

Charles S. Harlow  
2012.06.05 15:55:45-04'00'

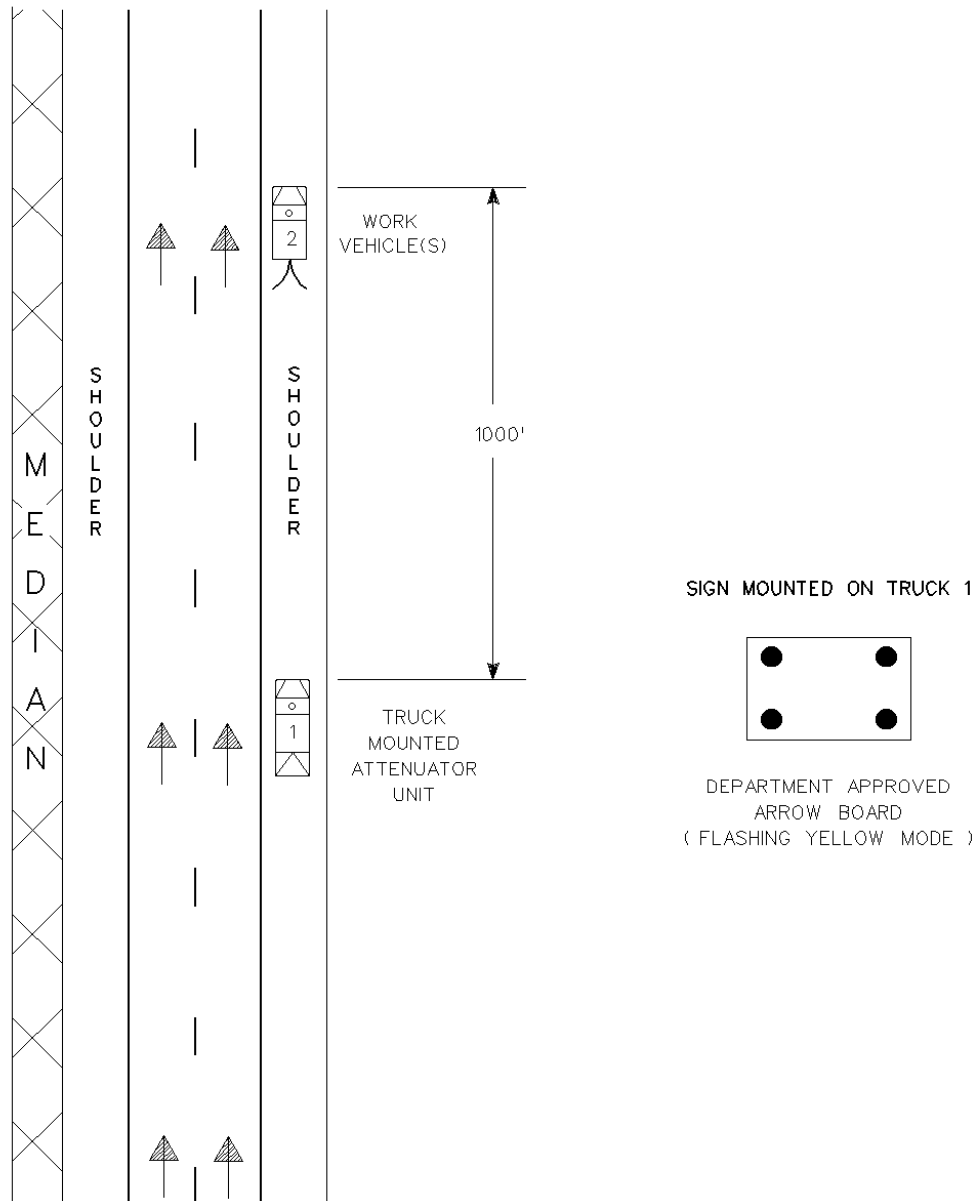




CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow*  
PRINCIPAL ENGINEER  
2012.06.05 15:57:16-04'00"

# MOVING OPERATION ON RIGHT SHOULDER MULTILANE HIGHWAY & SECONDARY ROADWAYS



REV'D 1-02

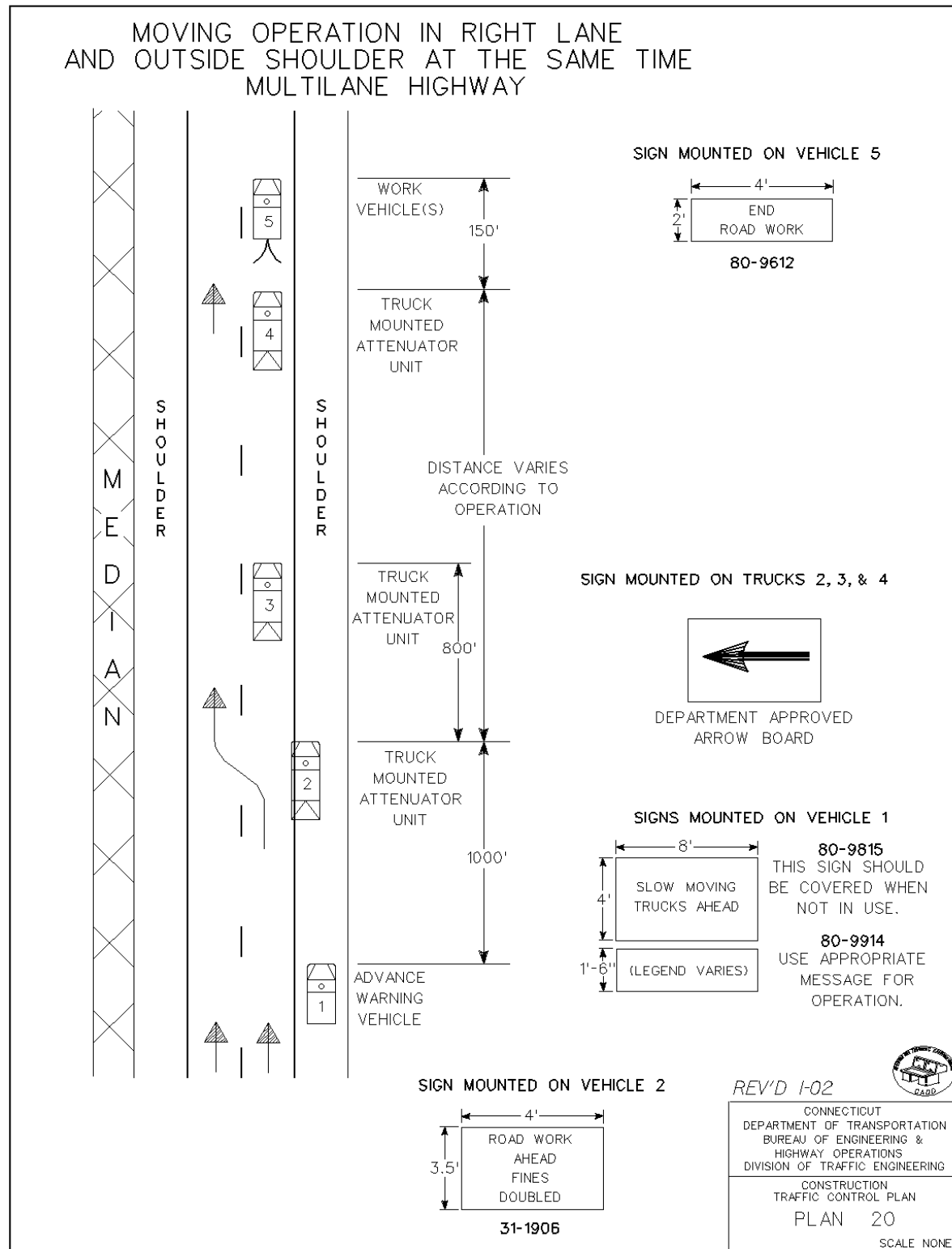


CONNECTICUT  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING &  
HIGHWAY OPERATIONS  
DIVISION OF TRAFFIC ENGINEERING

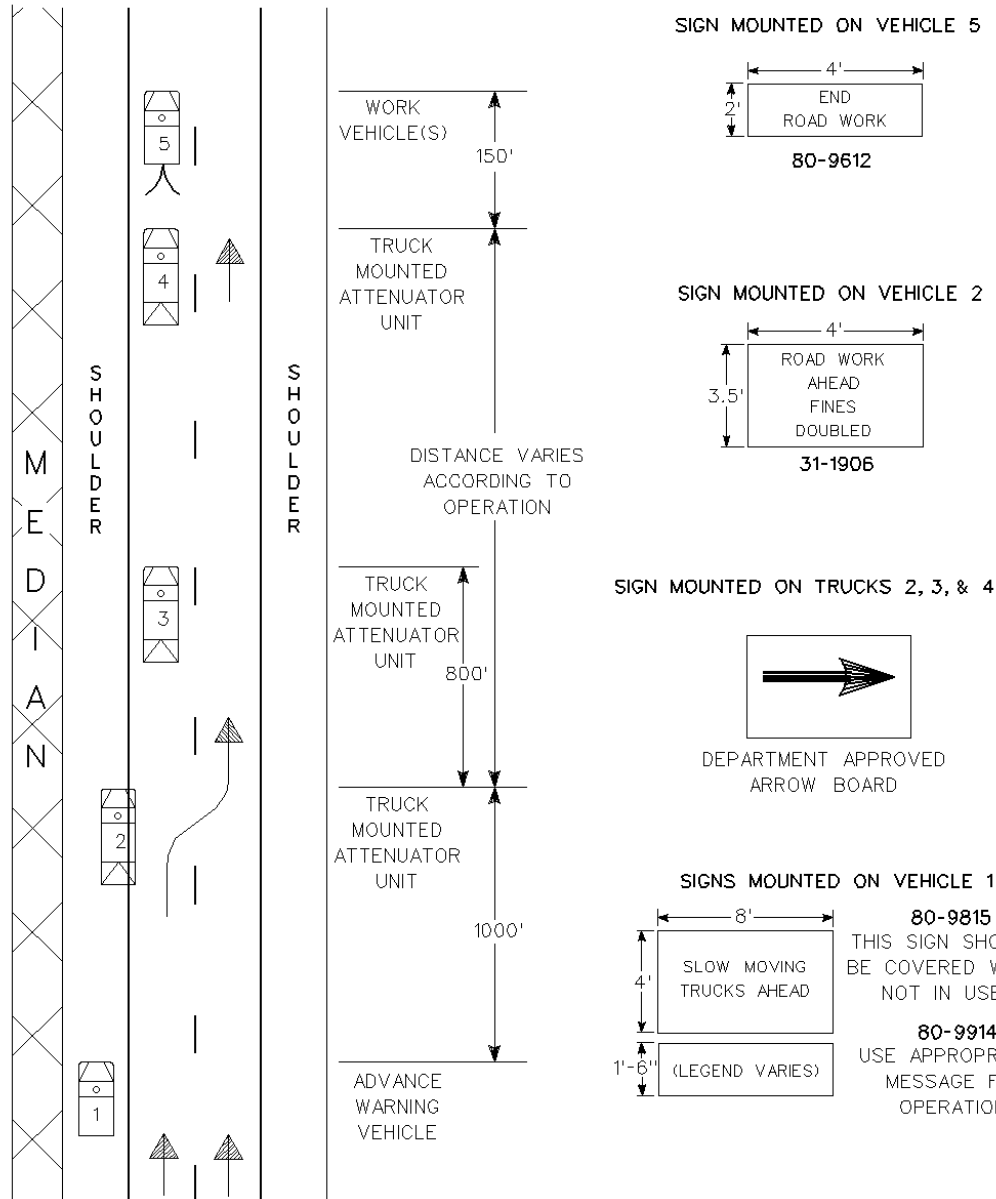
CONSTRUCTION  
TRAFFIC CONTROL PLAN  
PLAN 19

SCALE NONE

APPROVED J. McCall DATE 1-30-02  
PRINCIPAL ENGINEER



# MOVING OPERATION IN LEFT LANE AND INSIDE SHOULDER AT THE SAME TIME MULTILANE HIGHWAY



WHEN THE LEFT SHOULDER WIDTH CANNOT ACCOMMODATE A VEHICLE, THEN  
ADVANCE WARNING VEHICLE 1 MAY DRIVE PARTIALLY IN THE LANE.

REV'D I-02



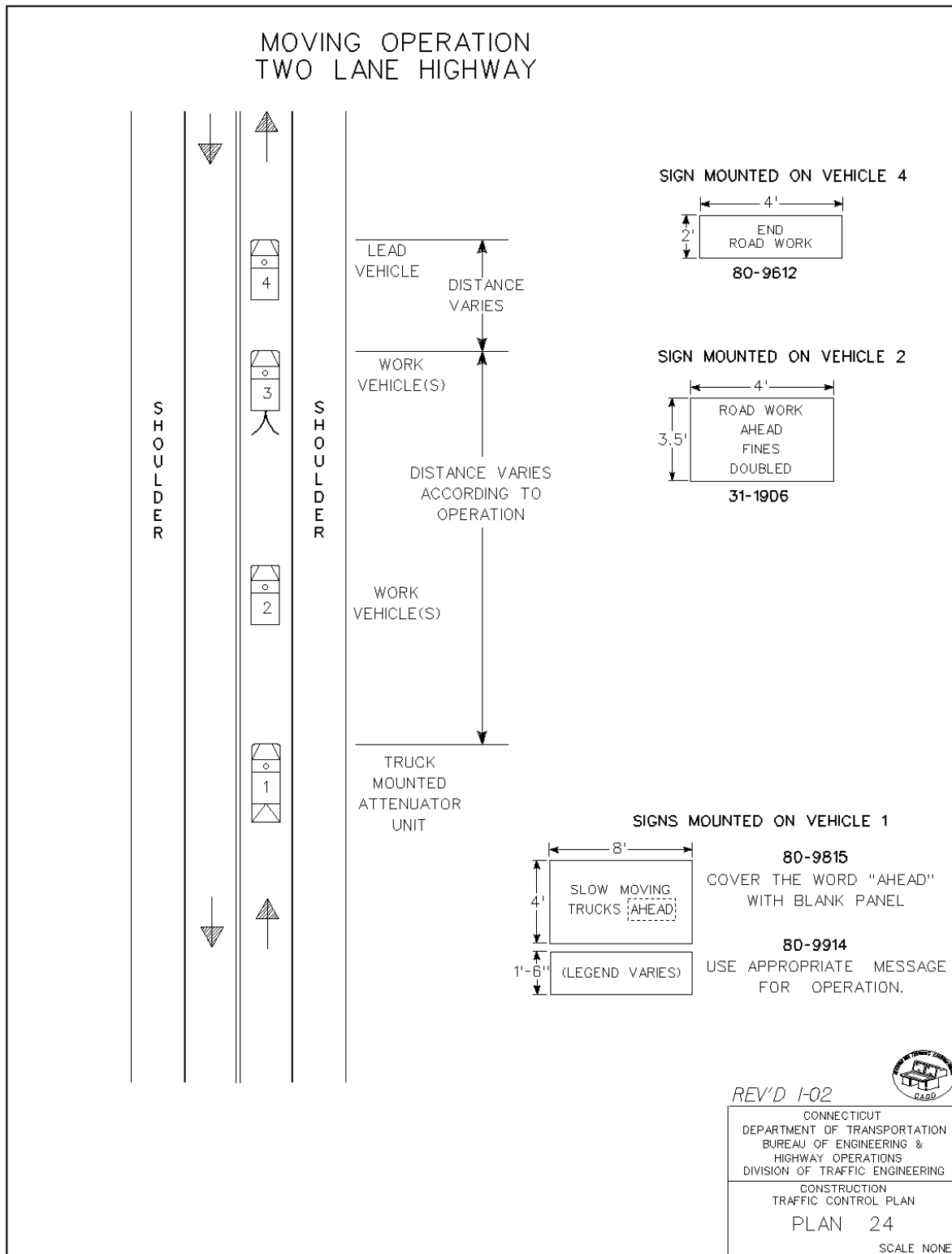
CONNECTICUT  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING &  
HIGHWAY OPERATIONS  
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION  
TRAFFIC CONTROL PLAN

PLAN 21

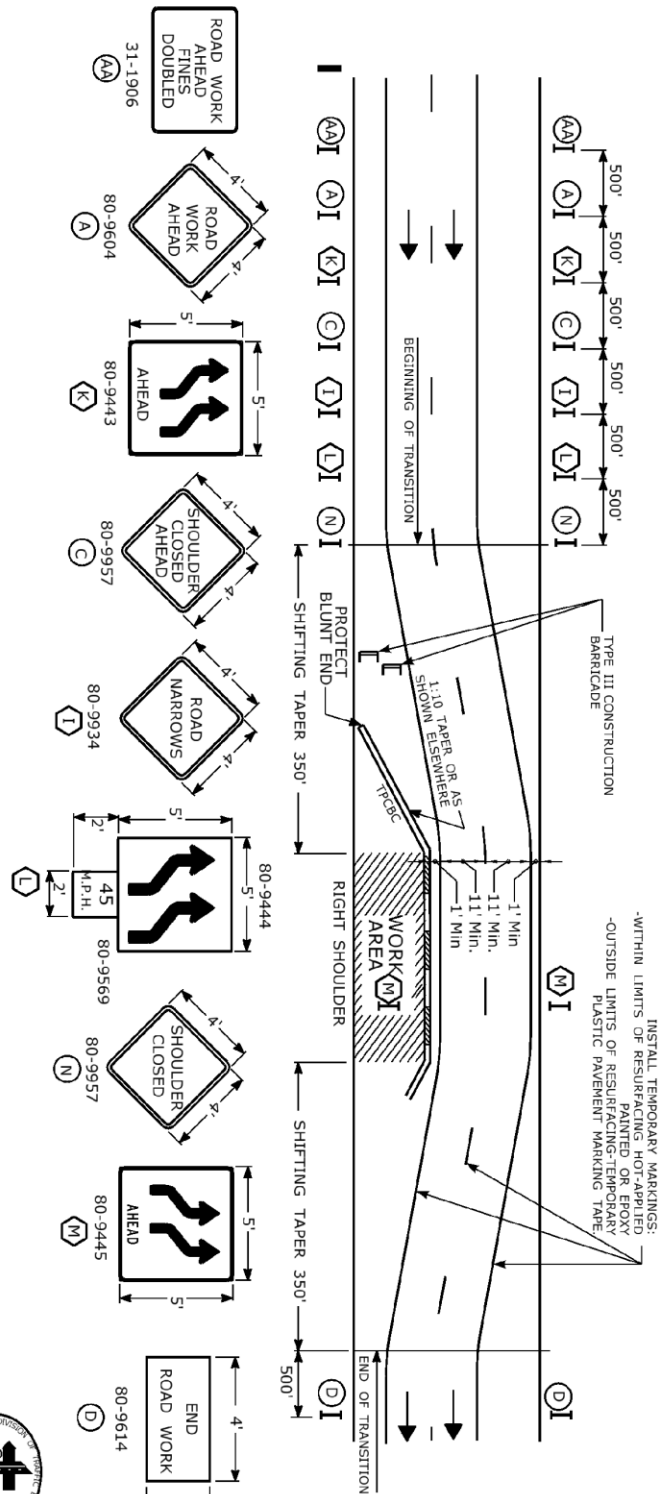
SCALE NONE

APPROVED John D. McCall DATE I-30-02  
PRINCIPAL ENGINEER



APPROVED John D. McCall DATE 1-30-02  
PRINCIPAL ENGINEER

# TRAFFIC CONTROL PLAN (RTE.15 NORTHBOUND AND SOUTHBOUND) RIGHT SHOULDER INSTALLATION



1. ALL POST MOUNTED SIGNS, EXCEPT (C) SHALL HAVE BARRICADE WARNING LIGHTS (HIGH INTENSITY)
2. SIGNS (A), (K) & (M) SHALL BE POST MOUNTED EXCEPT WHEN BEHIND T.P.C.B.C. OTHER SIGNS TO BE POST MOUNTED WHERE POSSIBLE.
3. CONFLICTING PAVEMENT MARKINGS WITHIN LIMITS OF RESURFACING SHALL BE REMOVED. CONFLICTING PAVEMENT MARKINGS OUTSIDE OF LIMITS OF RESURFACING SHALL BE COVERED WITH BLACK LINE MASK PAVEMENT MARKING TAPE. COVER OR REMOVE CONFLICTING MARKINGS OUTSIDE TRAVEWAY.
4. WIDTHS OF TRAVEL LANES AND SHOULDERS SHOWN ELSEWHERE.

MESSAGE NO. 1  
MESSAGE NO. 2  
LANE SHIFT LEFT  
REDUCE SPEED  
CHANGEABLE MESSAGE SIGN

FILENAME : ...\\TR\_MSH\_RTE15\_MPT\\typ\_lane\_shifts\_median\_&.rt..sh) dgn

SCALE - NONE

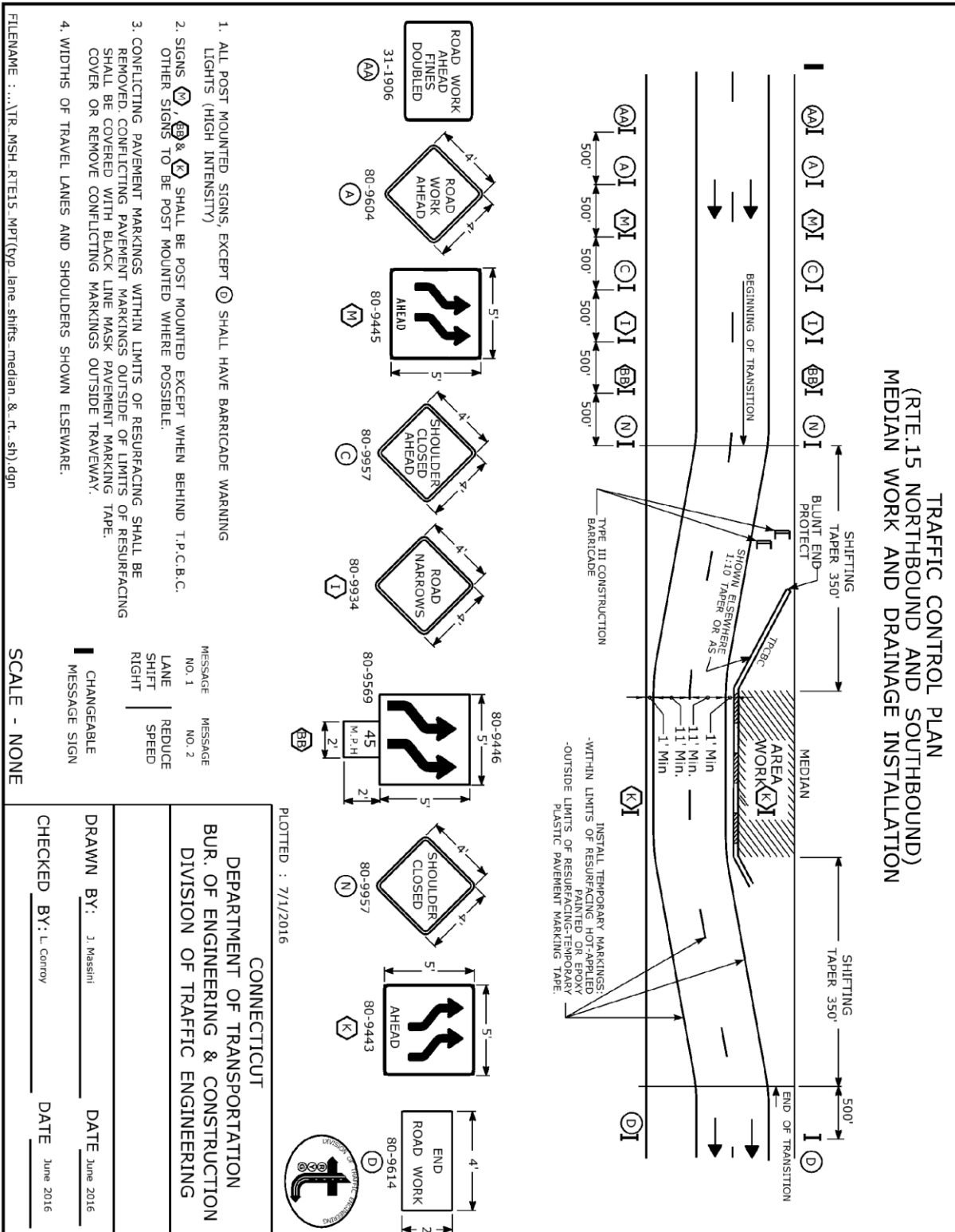
PLOTTED : 7/1/2016



CONNECTICUT  
DEPARTMENT OF TRANSPORTATION  
BUR. OF ENGINEERING & CONSTRUCTION  
DIVISION OF TRAFFIC ENGINEERING

SUBMITTED J. Massini DATE June 2016  
APPROVED L. Conroy DATE June 2016





**Article 9.71.05 – Basis of Payment is supplemented by the following:**

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”. Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic.”

## **ITEM #0974052 – REMOVAL OF EXISTING MASONRY – LIMITED METHODS**

**Description:** This item shall consist of the removal and satisfactory disposal of both sound and deteriorated concrete and reinforcing steel by limited methods to the limits shown on the plans, as directed by the Engineer, and in accordance with these specifications.

**Construction Methods:** The concrete shall be removed to the limits shown on the plans. The concrete shall be saw cut to delineate the removal limits. Pneumatic hammers or any other method approved by the Engineer may be used to remove the concrete. Maximum 30 lb. hammers shall be used for general removal while maximum 15 lb. hammers shall be used within 6 inches of concrete or reinforcing steel that is to remain. Pneumatic tools shall not be placed in direct contact with the reinforcing steel that is to remain.

Reinforcing steel shall be cut and removed as shown on the plans. Loose and small concrete fragments shall be cleaned from the reinforcing steel required to be left in place.

The Contractor shall take necessary precautions to prevent any damage to the portions of the structure to remain. Any damage shall be repaired by the Contractor, as directed by the Engineer, and at no cost to the State.

When removing the concrete and reinforcing steel, the Contractor shall take all necessary precautions to prevent debris from dropping to areas below the structure or onto adjacent traffic lanes.

All debris shall be disposed of, from the site, by the Contractor.

**Method of Measurement:** This work will be measured for payment by the number of cubic yards of masonry that have been removed in accordance with this special provision.

**Basis of Payment:** This work will be paid for at the contract unit price per cubic yard for "Removal of Existing Masonry - Limited Methods", which price shall include all equipment, tools, protective shields and labor incidental thereto.

## **ITEM #1118101A – TEMPORARY SIGNALIZATION**

### **Description:**

This item shall consist of furnishing, installing, maintaining, relocating and removing temporary traffic signal equipment and all necessary hardware as ordered and in conformance with the plans and applicable specifications.

### **Materials:**

All materials used for Temporary Signalization shall conform to the plans and pertinent articles of the Standard Specifications, the Supplemental Specifications, and the Special Provisions contained in this contract, or as approved by the Engineer. The materials can be new or used. Used material must not be damaged and its operation must be reliable. The Contractor must replace damaged or faulty material immediately. A Materials Certificate will be required.

### **Construction Methods:**

The Contractor shall review the traffic signal plan, contained in the contract plans, and, if any changes are necessary, the Contractor shall submit a revised plan to the Engineer for approval. In no case will the Contractor be allowed to revise an installation without prior knowledge and approval by the Division of Traffic Engineering.

Prior to the beginning of Temporary Signalization, the Contractor and the Engineer are required to meet with any property owners that have driveways that will be signalized and explain how the temporary signalization will operate.

Temporary Signalization shall begin when the Contractor installs the temporary traffic signal equipment.

The Contractor shall provide and maintain a temporary traffic signal capable of providing the approved phasing as shown on the plans or as directed by the Engineer. The Contractor shall relocate temporary signal equipment, including signal heads, vehicle detectors, etc., as many times as deemed necessary during construction to maintain and protect traffic where shown on the plans or as directed by the Engineer. The Contractor shall make modifications to the signal controller as necessary to maintain temporary signalization during each phase/stage of construction and shall make adjustments to the timing of the controller as necessary based on field conditions and as directed by the Engineer.

All equipment shall be relocated and/or removed in such a manner as to cause no hazard to pedestrians, traffic or property. When the Contractor is performing signal work, the Contractor shall maintain traffic as specified in the Special Provisions “Prosecution and Progress” and “Maintenance and Protection of Traffic.”

The Contractor shall be responsible for providing power to the temporary traffic signal via solar panels or by obtaining secondary service.

The Contractor shall be responsible for the cost of the electricity to operate the temporary traffic signal and the intersection shall have a metered service.

The Contractor shall be responsible for maintenance of the temporary traffic signal during Temporary Signalization. The Contractor shall provide to the Engineer and the local Police Department a list of telephone numbers of personnel who will be responsible for the maintenance of the temporary traffic signal on a 24-hour basis. The Contractor shall respond to traffic signal malfunctions by having a representative at the site within three hours and the temporary traffic signal back in operation within 24 hours.

Temporary equipment supplied by the Contractor will remain the Contractor's property at the completion of the project unless otherwise noted.

Temporary Signalization shall terminate when construction is complete and the temporary signal equipment is removed from the project as approved by the Engineer.

**Method of Measurement:**

Fifty percent (50%) of the contract price for Temporary Signalization shall be paid when Temporary Signalization begins and fifty percent (50%) shall be paid when Temporary Signalization terminates.

**Basis of Payment:**

This work shall be paid at the contract Lump Sum price for "Temporary Signalization."

This item shall consist of furnishing, installing, maintaining, relocating and removing temporary traffic signal equipment and all necessary hardware, materials, labor and work incidental thereto. This item shall also include supplying the electricity to operate the temporary traffic signal. All Contractor supplied items that will remain the Contractor's property shall be included in the contract Lump Sum price for "Temporary Signalization."

Pay Item

Temporary Signalization

Pay Unit

L.S.

## **ITEM #1206036A – REMOVE AND RELOCATE SIGN**

Section 12.06 is supplemented as follows:

### **Article 12.06.01 – Description is supplemented with the following:**

Work under this item shall include the removal and relocation of existing sheet aluminum signs to meet the “Typical Sign Placement Details” requirements of Standard Sheet TR-1208\_01 upon completion of roadway widening/regrading.

The Contractor shall relocate all sheet aluminum signs impacted by roadway widening/regrading to meet the requirements of the “Typical Sign Placement Details” of Standard Sheet TR-1208\_01. The Contractor shall review these locations with the Engineer and obtain concurrence for the reuse of existing sign posts and hardware for signs to be relocated.

### **Article 12.06.03 – Construction Methods is supplemented with the following:**

The Contractor shall take care during the removal and relocation of existing signs and sign posts to avoid causing damage. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

With approval from the Engineer, the existing sheet aluminum sign assemblies (signs and posts) designated for relocation can be relocated onto new base posts as long as the location and height requirements included in the “Typical Sign Placement Details” of Standard Sheet TR-1208\_01 will be met. Sign posts will need to be replaced if these requirements will not be met.

The sign assembly hardware can be reused with approval of the Engineer.

The existing base posts of signs to be relocated shall be removed and disposed of.

Materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

The sign assemblies designated for relocation shall be reinstalled on the same day that they are removed.

### **Article 12.06.04 – Method of Measurement is supplemented with the following:**

Payment under Remove and Relocate Sign shall be per individual sign assembly being removed and relocated. This price shall include the relocation of the existing sign(s) and existing sign posts onto new base posts, relocating the existing sign(s) onto new sign posts and new base posts, and installation of new base posts and new associated hardware, if necessary. Also included, shall be the removal and disposal of existing base posts, sign posts not to be reused, and materials designated for disposal. All work and equipment required to perform these tasks are included in the cost of this item.

**Article 12.06.05 – Basis of Payment is supplemented with the following:**

This work will be paid for per individual sign assembly designated for relocation under “Remove and Relocate Sign”. This price shall include relocating designated sheet aluminum signs and sign posts onto new base posts, relocating existing signs onto new sign posts and new base posts, the cost of the new base posts as well as the new sign posts and new hardware where necessary. The cost shall also include removing and disposing of existing base posts, sign posts that are not going to be reused, and other associated materials, and all equipment, material, tools and labor incidental thereto.

Payment under this item shall also include reviewing the location of the existing sheet aluminum sign assemblies to determine if existing sign posts and hardware can be reused

<u>Pay Item</u>	<u>Pay Unit</u>
Remove and Relocate Sign	EA.

## **ITEM #1206036A – REMOVE AND RELOCATE SIGN**

Section 12.06 is supplemented as follows:

### **Article 12.06.01 – Description is supplemented with the following:**

Work under this item shall include the removal and relocation of existing sheet aluminum signs to meet the “Typical Sign Placement Details” requirements of Standard Sheet TR-1208\_01 upon completion of roadway widening/regrading.

The Contractor shall relocate all sheet aluminum signs impacted by roadway widening/regrading to meet the requirements of the “Typical Sign Placement Details” of Standard Sheet TR-1208\_01. The Contractor shall review these locations with the Engineer and obtain concurrence for the reuse of existing sign posts and hardware for signs to be relocated.

### **Article 12.06.03 – Construction Methods is supplemented with the following:**

The Contractor shall take care during the removal and relocation of existing signs and sign posts to avoid causing damage. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

With approval from the Engineer, the existing sheet aluminum sign assemblies (signs and posts) designated for relocation can be relocated onto new base posts as long as the location and height requirements included in the “Typical Sign Placement Details” of Standard Sheet TR-1208\_01 will be met. Sign posts will need to be replaced if these requirements will not be met.

The sign assembly hardware can be reused with approval of the Engineer.

The existing base posts of signs to be relocated shall be removed and disposed of.

Materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

The sign assemblies designated for relocation shall be reinstalled on the same day that they are removed.

### **Article 12.06.04 – Method of Measurement is supplemented with the following:**

Payment under Remove and Relocate Sign shall be per individual sign assembly being removed and relocated. This price shall include the relocation of the existing sign(s) and existing sign posts onto new base posts, relocating the existing sign(s) onto new sign posts and new base posts, and installation of new base posts and new associated hardware, if necessary. Also included, shall be the removal and disposal of existing base posts, sign posts not to be reused, and materials designated for disposal. All work and equipment required to perform these tasks are included in the cost of this item.



**Article 12.06.05 – Basis of Payment is supplemented with the following:**

This work will be paid for per individual sign assembly designated for relocation under “Remove and Relocate Sign”. This price shall include relocating designated sheet aluminum signs and sign posts onto new base posts, relocating existing signs onto new sign posts and new base posts, the cost of the new base posts as well as the new sign posts and new hardware where necessary. The cost shall also include removing and disposing of existing base posts, sign posts that are not going to be reused, and other associated materials, and all equipment, material, tools and labor incidental thereto.

Payment under this item shall also include reviewing the location of the existing sheet aluminum sign assemblies to determine if existing sign posts and hardware can be reused

<u>Pay Item</u>	<u>Pay Unit</u>
Remove and Relocate Sign	EA.

## **ITEM #1206097A –RELOCATION OF EXISTING SIGNING**

Section 12.06 is supplemented as follows:

### **Article 12.06.01 – Description is supplemented with the following:**

Work under this item shall include the removal and relocation of existing extruded aluminum signs that will require relocation due to proposed roadway widening\regrading around the existing foundations and structural steel breakaway sign supports.

Work under this item shall include the removal and relocation of the existing extruded aluminum signs onto new extruded aluminum sign supports, new hardware, and new foundations. The cost associated with the new foundations and new structural steel breakaway sign supports will be paid for under the appropriate item numbers included elsewhere in the contract. The cost of the hardware associated with the sign installation shall be included in this item.

### **Article 12.06.03 – Construction Methods is supplemented with the following:**

The Contractor shall take care during the removal and relocation of existing signs to avoid causing damage. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

Materials requiring removal, including foundations, shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Extruded aluminum signs requiring relocation are to be installed on new structural steel breakaway sign supports with new hardware and foundations. The proposed location of the sign's foundations and left edge shall be staked out at least 2 weeks prior to installation for review and approval by Traffic Engineering – Project Design. The location of the relocated signs shall meet the "Typical Placement of Side Mounted Signs on Structural Steel Breakaway Sign Supports" detail included on Standard Sheet TR-1208\_01. The Engineer shall be notified if these requirements cannot be met.

Steps shall be taken to protect the painted back side and the front legend side of the existing signs to be relocated. Any signs that are damaged shall be repaired and if necessary replaced at the Contractor's expense.

The signs shall be reinstalled on the same day that they are removed.

### **Article 12.06.04 – Method of Measurement is supplemented with the following:**

Payment under Relocation of Existing Signing shall be per individual extruded aluminum sign assembly being removed and relocated. This price shall include the work/labor associated with the relocation of the existing sign, removal and disposal of the existing breakaway sign supports and associated hardware, and removal of existing foundations to a depth of at least 6 inches below

finished grade. The new foundations and breakaway sign supports will be paid for under the appropriate items included elsewhere in the contract. The cost of the new hardware associated with the sign installation shall be included in this item.

**Article 12.06.05 – Basis of Payment is supplemented with the following:**

This work will be paid for per individual extruded aluminum sign assembly designated for removal and relocation under “Relocation of Existing Signing”. This price shall include relocating designated extruded aluminum signs onto new structural steel breakaway sign supports and foundations, new hardware required for sign installation, removal and disposal of existing sign supports, associated hardware and foundations.

<u>Pay Item</u>	<u>Pay Unit</u>
Relocation of Existing Signing	EA.

**ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)**

*Section 12.08 is supplemented and amended as follows:*

**12.08.01—Description:**

*Add the following:*

This item shall also include field testing of metal sign base posts as directed by the Engineer.

**12.08.03—Construction Methods:**

*Delete the last sentence and add the following:*

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

**Field Testing of Metal Sign Posts:** When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

**12.08.04—Method of Measurement:**

*Add the following:*

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

**12.08.05—Basis of Payment:**

*Replace the entire Article with the following:*

This work will be paid for at the Contract unit price per square foot for “Sign Face - Sheet Aluminum” of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

**Pay Factor Scale:** Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

ITEM #1208931A

**Number of Posts to be Tested and Pay Factors (Based on Number of Defects)**

<b>Number of Posts in Project =&gt;</b>	<b>51-100</b>	<b>101-250</b>	<b>251-1000</b>	<b>&gt;1000</b>
<b>Sample Size=&gt;</b>	<b>5 Posts</b>	<b>10 Posts</b>	<b>40 Posts</b>	<b>60 Posts</b>
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing

## **ITEM #1806226A – PRE-WARNING VEHICLE**

**Description:** Work under this item shall include furnishing, deploying and maintaining a Truck-Mounted Impact Attenuator equipped with a changeable message sign (CMS) for use as a Pre-Warning Vehicle (PWV) in a rolling road block operation on limited access highways. Impact attenuators shall only be truck-mounted. The message on the sign shall warn motorists of slow or stopped traffic conditions.

**Materials:** The Truck-Mounted Impact Attenuator shall meet the requirements of Article 18.06.02, except replace all instances of “flashing arrow,” “arrow sign,” and “arrow” with “CMS”. The CMS shall meet the requirements of Article 11.31.02, with the following amendments:

**1. Physical Characteristics of the CMS**

- a) Mounting – The CMS shall be truck mounted only
- b) Sign Display Dimensions – Width of 6 feet, height of 4 feet

**2. Visual Characteristics of the CMS Display**

- a) Sign Type – CMS shall have a LED display only
- b) Color – CMS shall have black background with orange, yellow, or amber legend
- c) Characters – Letter height shall be 13 inches; Single stroke
- d) Visibility – CMS brightness must provide for visibility at 1/2 mile
- e) Message – The message shall read as follows, or shall be as directed by the Engineer:

Frame 1: SLOWED TRAFFIC AHEAD

Frame 2: BE PREPARED TO STOP

Or

Frame 1: STOPPED TRAFFIC AHEAD

Frame 2: BE PREPARED TO STOP

**Construction Methods:** The PWV shall be initially positioned in the right shoulder ½ mile prior to the rolling road block operation.

If a traffic queue reaches the PWV’s initial location, the Contractor shall slowly reverse the PWV along the shoulder to position itself prior to the new back of queue.

The Contractor shall meet the requirements of Article 18.06.03.

**Method of Measurement:** This work will be measured for payment by the actual number of hours that the Pre-Warning Vehicle is used in a rolling road block operation.

**Basis of Payment:** This work will be paid for at the Contract unit price per hour for “Pre-Warning Vehicle,” which shall include the furnishing and use of the pre-warning vehicle and a driver, attenuator reflector, flashing lights, changeable message sign, and all equipment, materials, tools, labor, disposal of damaged Truck-Mounted Impact Attenuator components and work incidental thereto.

Pay Item	Pay Unit
Pre-warning Vehicle	hr

## **PERMITS AND/OR REQUIRED PROVISIONS**

The following Permits and/or and Required Provisions follow this page are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**

Flood Management (General)	Approved: March 11, 2020
Inland Wetland (General)	Approved: May 28, 2020
Army Corps of Engineering SV	Approved: June 17, 2020

- **Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)**



**STATE OF CONNECTICUT**  
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931

Regulatory Division  
U.S. Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

Subject: **State Project No. 0102-0368**  
Route 15 Safety Improvements, Resurfacing, Enhancements, and Bridge  
Improvements  
City of Norwalk & Town of Westport

Whom it may concern:

Enclosed please find one copy of the USACE Appendix E: Self-Verification Notification Form for GP's 18 & 19 with attachments for your files. A copy has also been submitted to the Connecticut Department of Energy and Environmental Protection. The project has been submitted to the United States Fish & Wildlife Service by DOT's Office of Environmental Planning under the Final 4(d) Rule using the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form on behalf of FHWA. Any questions pertaining to this application may be directed to Mr. Jason M. Coite, Transportation Supervising Engineer of my staff, at 860-594-3448.

Very truly yours,

**Kimberly Lesay** Digitally signed by Kimberly  
Lesay  
Date: 2020.05.27 09:43:32 -04'00'

Kimberly C Lesay  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

Attachments





**US Army Corps  
of Engineers®**  
New England District

## Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B  
U.S. Army Corps of Engineers  
696 Virginia Road  
Concord, MA 01742-2751  
or [cenae-r@usace.army.mil](mailto:cenae-r@usace.army.mil)

and

CT DEEP  
Inland Water Resources Division  
79 Elm Street  
Hartford, CT 06106-5127

\*\*\*\*\*

State or local Permit Number: \_\_\_\_\_

Date of State or local Permit: \_\_\_\_\_

State/local Project Manager: \_\_\_\_\_

Permittee: Connecticut Department of Transportation

Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111

Phone(s) and Email: Kimberly.Lesay@ct.gov, 860-594-2931

Contractor: TBD by low bid process

Address, City, State & Zip: \_\_\_\_\_

Phone(s) and Email: \_\_\_\_\_

Consultant/Engineer/Designer: Connecticut Department of Transportation

Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111

Phone(s) and Email: Nicholas.Ivanoff@ct.gov

Wetland/Soil Scientist Consultant: CT DOT Office of Environmental Planning

Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111

Phone(s) and Email: Michael.Salter@ct.gov, 860-594-2933

Project Location (provide detailed description & locus map): Route 15 from Route 15 over Main Avenue in Norwalk, CT to Route 15 over Newtown Turnpike in Westport, CT

Address, City, State & Zip: Norwalk, CT 06851/ Westport, CT 06880

Latitude/Longitude Coordinates: 41.149866, -73.409774

Waterway Name: Unnamed watercourse and wetlands

Project Purpose (include all aspects of the project including those not within Corps jurisdiction):  
This project purpose is a corridor improvement effort to provide safety improvements and

enhancements to the Merritt Parkway, while maintaining its unique character and aesthetics

Work Description: \_\_\_\_\_

Please see attached Project Description

**Work will be done under the following GP(s) (check all that have associated impacts):**

**\_\_\_\_\_ GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 5 - Boat ramps/marine railways**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 6 - Utility line activities (include calculations for each single & complete crossing  
– attach additional sheet if necessary)**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 9 - Shoreline and bank stabilization projects**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 12 - Oil Spill and Hazardous material cleanup**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 13 - Cleanup of hazardous and toxic waste**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 14 - Scientific measurements devices**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 15 - Survey activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 17 - New/expanded developments & recreational facilities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total wetland impacts:	temporary	<u>157</u>	SF	permanent	<u>282</u>	SF
Area of total waterway impacts:	temporary	<u>0</u>	SF	permanent	<u>0</u>	SF

Area of total wetland impacts:	temporary	<u>0</u>	SF	permanent	<u>0</u>	SF
Area of total waterway impacts:	temporary	<u>225</u>	SF	permanent	<u>595</u>	SF

Area of total wetland impacts: temporary \_\_\_\_\_SF permanent \_\_\_\_\_SF  
Area of total waterway impacts: temporary \_\_\_\_\_SF permanent \_\_\_\_\_SF

(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: \_\_\_\_\_

**Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.**

Date \_\_\_\_\_

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation

Project No.0102-0368

Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

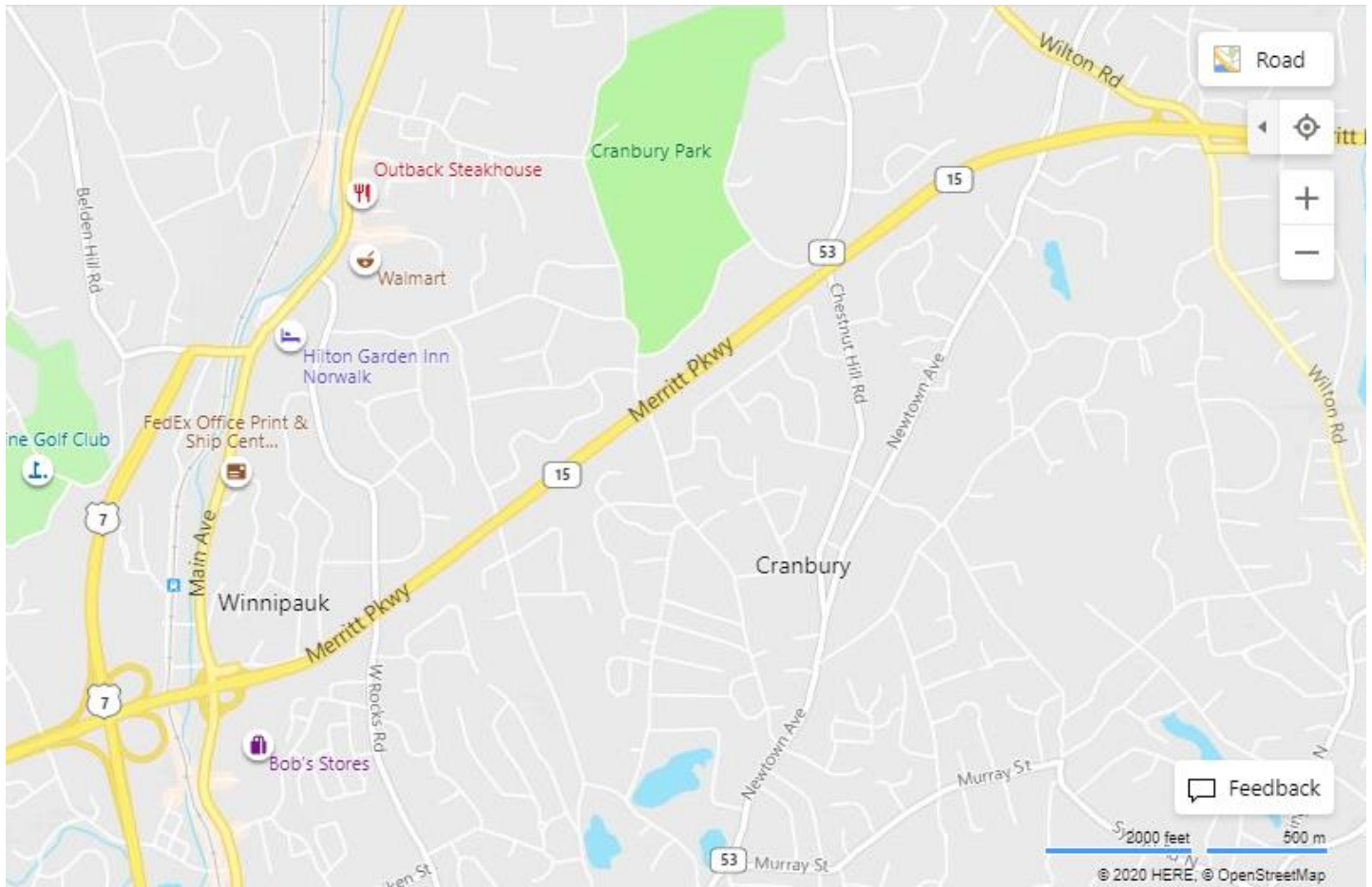
---

#### **Attachment 1: Locus Map**

USACE Self-Verification From, GP 18 & GP 19  
Applicant: State of Connecticut, Department of Transportation  
Project No.0102-0368

Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

## Attachment 1: Locus Map



USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 2: Project Description**

## **Attachment 2: Project Description**

CT DOT Project No. 0102-0368 involves Merritt Parkway (Route 15) safety improvements, resurfacing, enhancements and bridge improvements from Route 15 over Main Avenue in Norwalk to Route 15 over Newtown Turnpike in Westport. Additionally, the deceleration lane for the Route 15 Southbound Exit 40B will be extended approximately 1,010 feet. Extension of the deceleration lane requires extension of an existing 4' x 4' box culvert carrying an unnamed brook under Route 15.

This project has been initiated by the Connecticut Department of Transportation (Department) as part of a corridor improvement effort to provide safety improvements and enhancements to the Merritt Parkway, while maintaining its unique character and aesthetics. This is the 8th and final project in a series of 8 corridor improvement projects on the Merritt Parkway. With completion of this project 100% of the Parkway will be upgraded.

This project involves resurfacing Route 15 in both directions as well as providing various safety improvements and aesthetic enhancements. All work would conform to the "Merritt Parkway Guidelines for General Maintenance and Transportation Improvements" recommendations, prepared by the Merritt Parkway Working Group in June 1994. In addition, the project will rehabilitate and restore historic bridge structures in accordance with the "Merritt Parkway Bridge Restoration Guide" dated May 2002.

Roadway improvements include the following: widening the existing shoulders to 8-feet (4-foot paved shoulder and 4-foot reinforced grass shoulder); replacing the existing variety of guiderail with Merritt Parkway Guide Rail (steel backed timber railing); correcting existing cross slopes of the roadway to meet standards; removing rock ledges and other fixed objects within the recommended clear zone or protecting it with Merritt Parkway Guide Rail or Merritt Parkway Concrete Barrier; installing a slip lined concrete curb and gutter system along the median for drainage and delineation purposes; limited full-depth pavement replacement under bridges and patching of other deteriorated areas; resurfacing of the roadway; installing new drainage; installing Merritt Parkway Median Barrier in areas where the width of the roadway is limited. Existing drainage outlets will be rehabilitated, including removal of accumulated sediments, repair of existing headwalls and installation of riprap aprons.

The bridges within the project limits will require minor cosmetic work (various parapet work, graffiti removal, surface and crack repairs to concrete, fencing, overlay, etc). Some bridges may require major work including removing the material on top of the bridge to expose the concrete arch or frame; repairing any deteriorated sections; applying a waterproofing membrane; re-establishing the roadway to its original profile; performing any necessary underside repairs; and finally cleaning the bridge.

Additionally the existing Route 15 Southbound Exit 40B deceleration lane will be extended from 260 feet to 1,270 feet. In order to extend the deceleration lane, an existing 4-foot by 4-foot box culvert carrying an unnamed watercourse below Route 15 will need to be extended. The box culvert will be extended at the inlet approximately 18 feet to the north in order to accommodate the proposed slopes for the deceleration lane.

Impacts to the wetlands will be minimized through adherence to the Form 817 Section 1.10 Best Management Practices (BMP's) and the 2004 Stormwater Quality Manual. Sedimentation and Erosion Control Systems will be implemented throughout the project area and installed in accordance with the 2002 Guidelines for Soil Erosion and Sedimentation Control.

The project will result in 282 sq. ft. of permanent wetland impacts and 157 sq. ft. of temporary wetland impacts. Proposed wetland impacts are a result of rehabilitation of five stormwater outlets that directly discharge to wetlands. Rehabilitation of the existing stormwater outlets will consist of removal of accumulated sediments, installation of riprap aprons and construction access. The project will also result in 595 sq. ft. of permanent and 225 sq. ft. of temporary watercourse impacts (below OHW). The proposed watercourse impacts are associated with extension of the existing culvert, which is required for construction of 1,010 feet of additional deceleration lane for Exit 40B. The impacts are a result of

installation of the proposed box culvert extension and wingwalls, embankment grading, placement of natural streambed material to restore the stream channel, and water handling for construction of the culvert extension in the dry.

All disturbed wetland areas will be seeded with a wetland grass establishment seed mix and slopes will be reseeded with a conservation seeding for slopes. This project also involves the rehabilitation of the existing landscaping throughout the project limits by removing invasive species, preserving existing plantings, and adding additional plantings in accordance with the "Merritt Parkway Landscape Master Plan" dated October 1994.

The project is scheduled to start construction in spring 2021 and is scheduled to take two construction seasons.

The proposed project has received a Flood Management General Certification from DOT Hydraulics & Drainage. The project requires a Self-Verification Notification Form under GP 18 & GP 19 from the US Army Corps of Engineers and a General Permit for Water Resource Construction Activities (Form O) from the Connecticut Department of Energy and Environmental Protection.



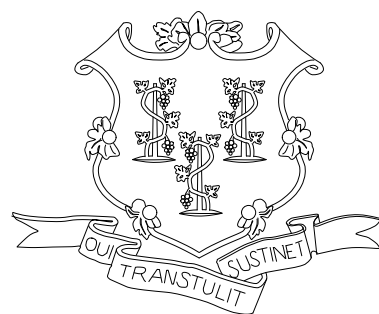
USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

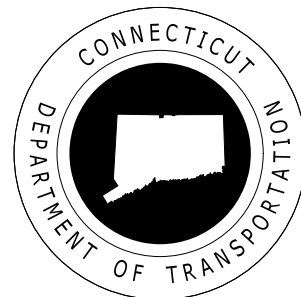
---

**Attachment 3: Project Plans**

- |          |  |
|----------|--|
| • PMT-01 | Title Sheet                            |
| • PMT-02 | Permit Plan Index Sheet                |
| • PMT-03 | Permit Plan Index Sheet                |
| • PMT-04 | Drainage Outfall Rehab Details         |
| • PMT-05 | Highway Plan                           |
| • PMT-06 | Highway Plan                           |
| • PMT-07 | Highway Plan                           |
| • PMT-08 | Wetland/Watercourse Impact Plan        |
| • PMT-09 | Wetland/Watercourse Impact Plan        |
| • PMT-10 | Wetland/Watercourse Impact Plan        |
| • PMT-11 | Area 1 Staging and Water Handling Plan |
| • PMT-12 | Area 1 Elevations and Section          |

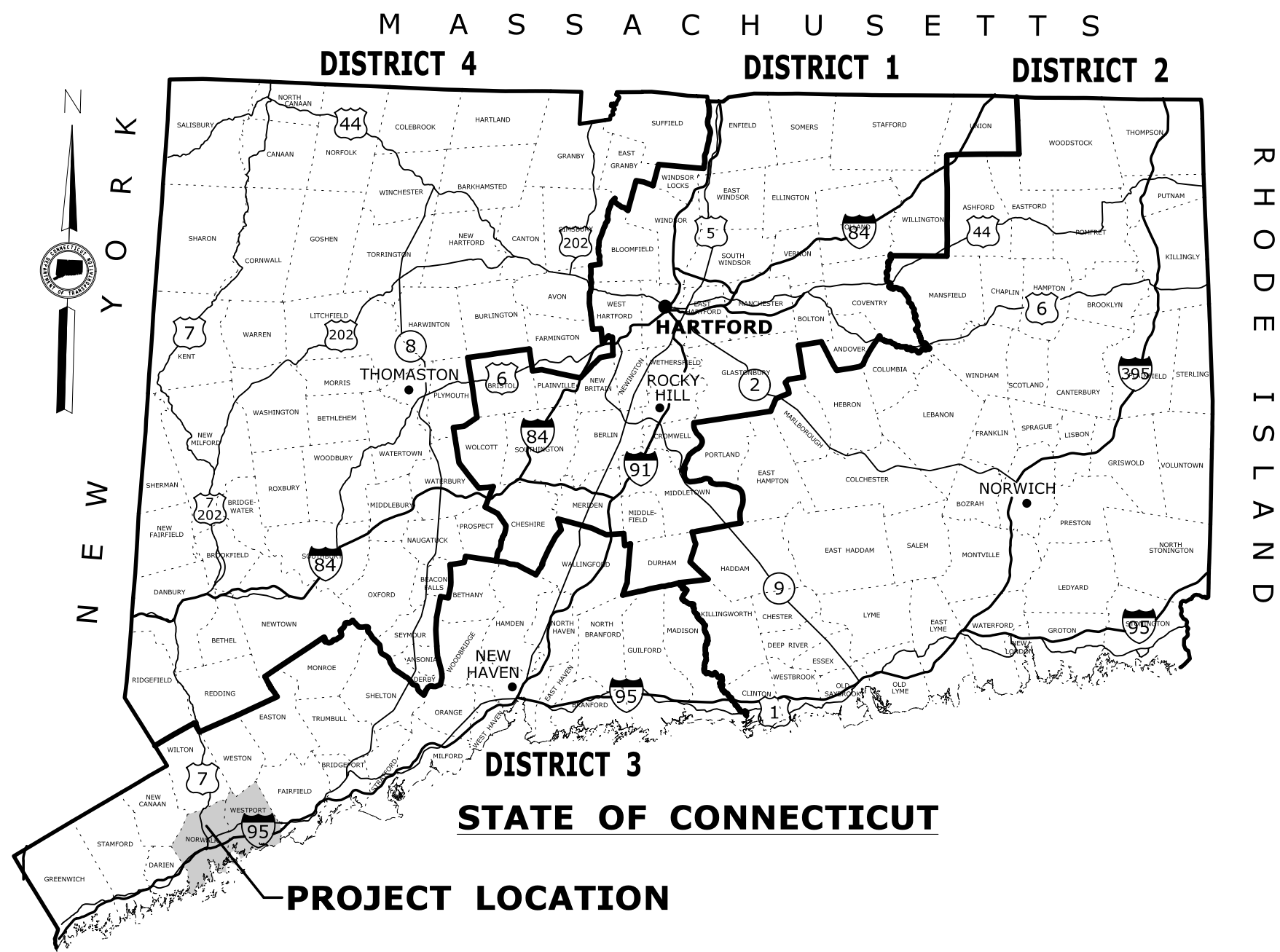


# CONNECTICUT DEPARTMENT OF TRANSPORTATION



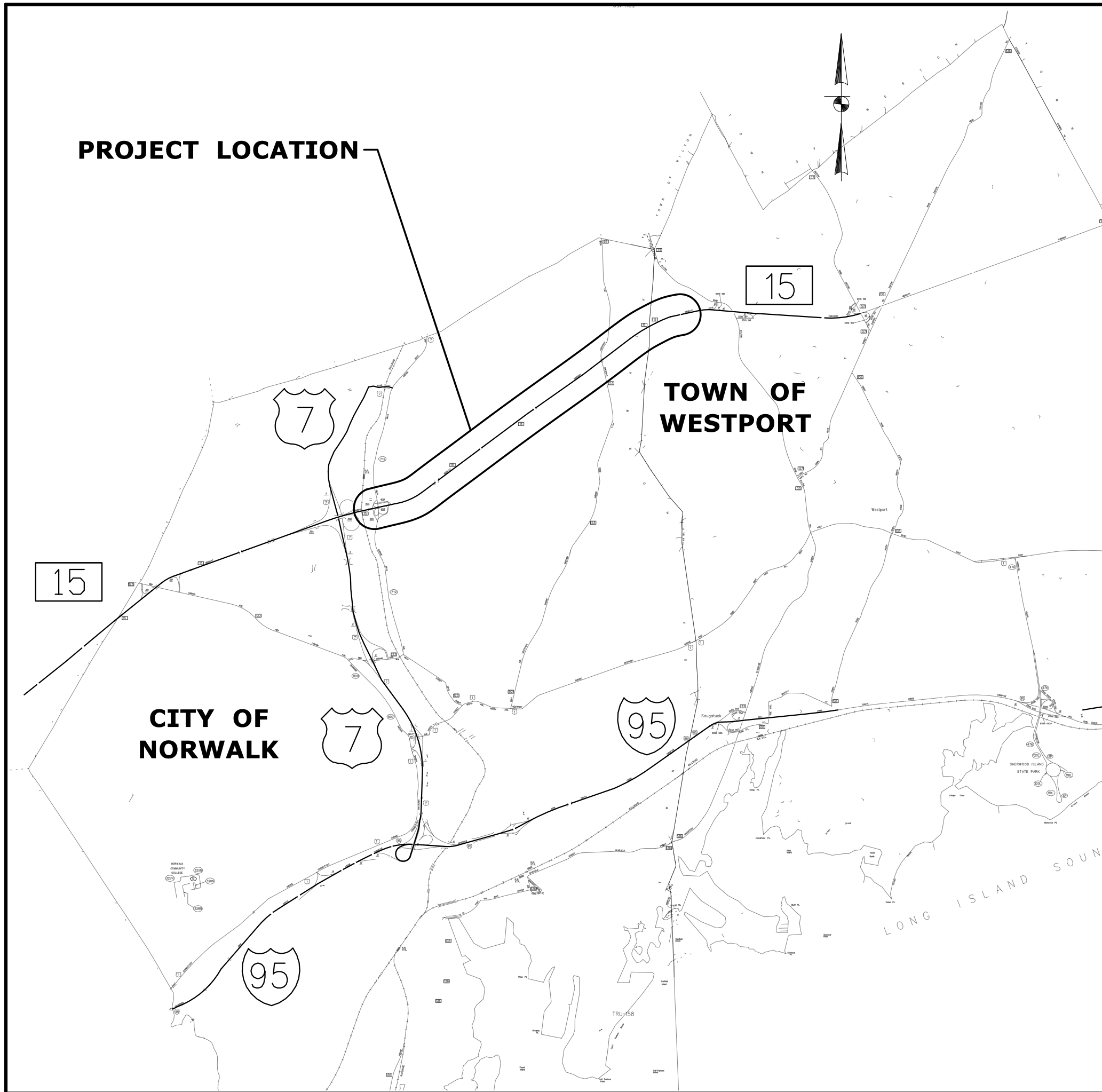
## ENVIRONMENTAL PERMIT PLANS FOR ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS

### CITY AND TOWN of NORWALK AND WESTPORT



ROAD	MAINTENANCE RESPONSIBILITY	LENGTH
Route 15	STATE	2.7 MILES

F.A.P. #	MAINTENANCE RESPONSIBILITY	PROJECT #
0015(104)	STATE	0102-0368



LOCATION PLAN  
NOT TO SCALE

#### GENERAL NOTES:

- THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND ACOE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
- FOR A DESCRIPTION OF THE WATERCOURSES, WETLAND AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE APPLICATION.
- 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983  
VERTICAL DATUM BASED ON NAVD OF 1983.
- ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

#### LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02 TO PMT-03	PERMIT PLAN INDEX SHEET
PMT-04	DRAINAGE OUTFALL REHAB DETAILS
PMT-05 TO PMT-07	HIGHWAY PLAN
PMT-08 TO PMT-10	WETLAND/WATERCOURSE IMPACT PLAN
PMT-11	AREA 1 STAGING AND WATER HANDLING PLAN
PMT-12	AREA 1 ELEVATIONS & SECTION

THE DESIGN APPEARS TO CONFORM TO APPLICABLE CRITERIA. APPROVAL IS NOT TO BE CONSTRUED TO MEAN THAT ALL ASPECTS OF THE DESIGN HAVE BEEN PERSONALLY CHECKED BY THE UNDERSIGNED.

SUBMITTED BY: TRANSPORTATION PRINCIPAL ENGINEER - MATTHEW R. VAIL, P.E.

Plans For  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

Town(s)/City  
NORWALK, WESTPORT

STATE PROJECT NO.

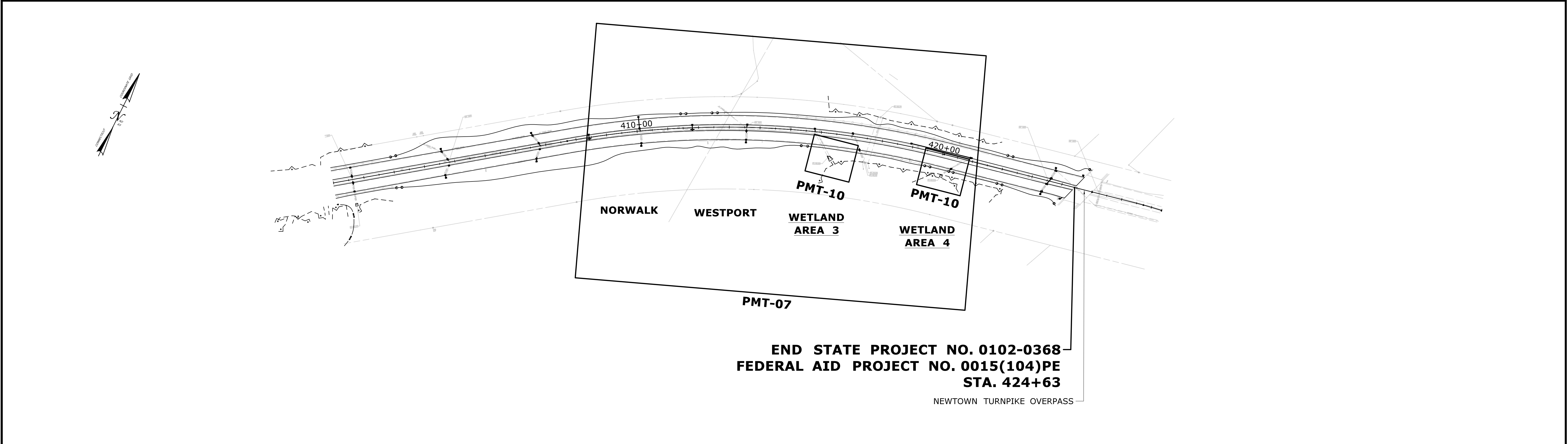
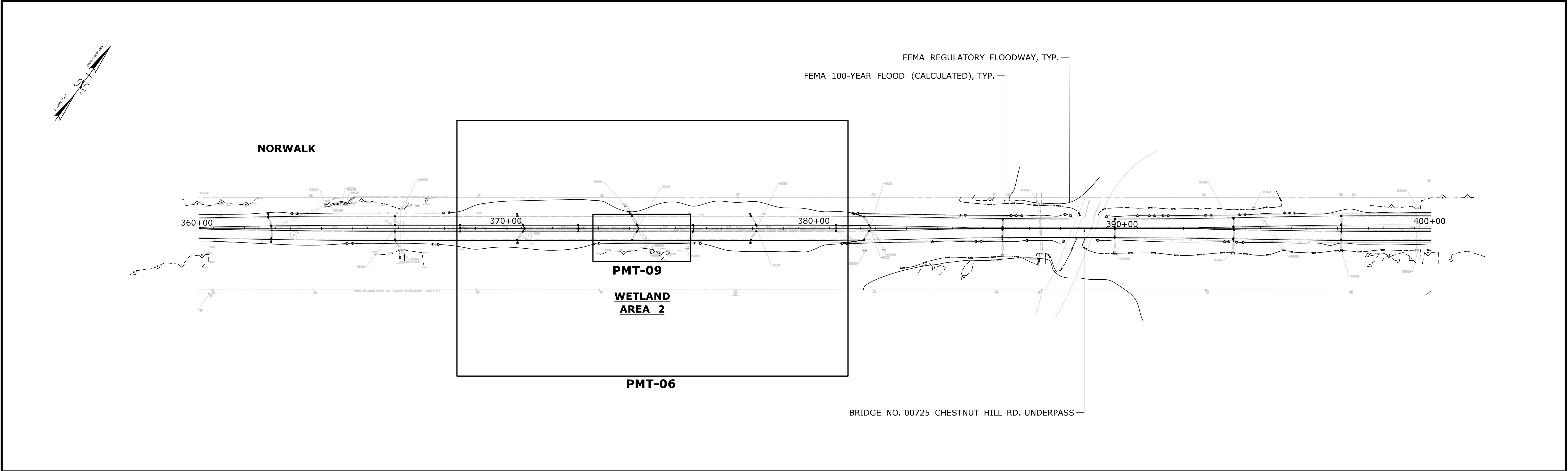
0102-0368

DRAWING NO.


PMT-01

SHEET NO.

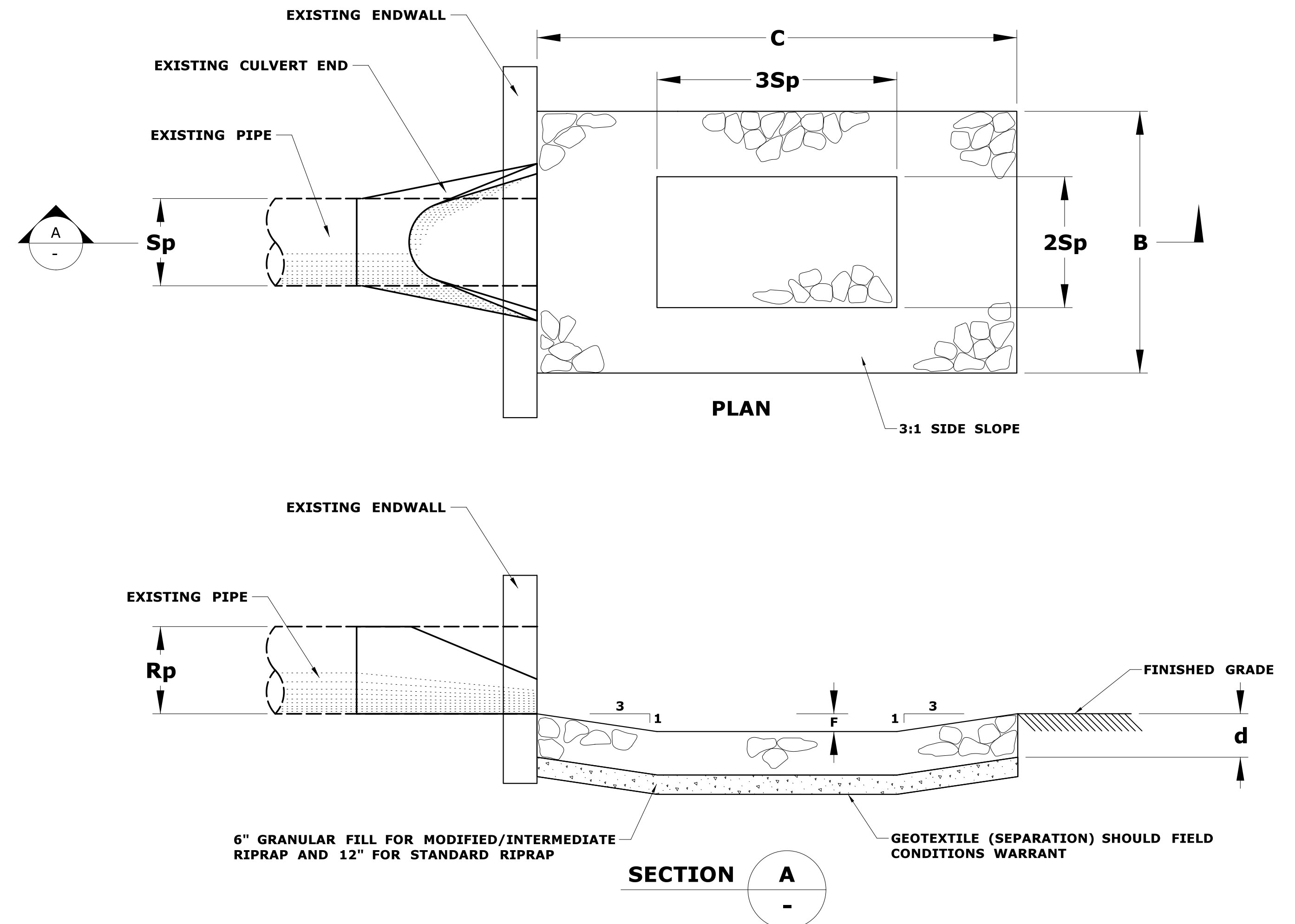
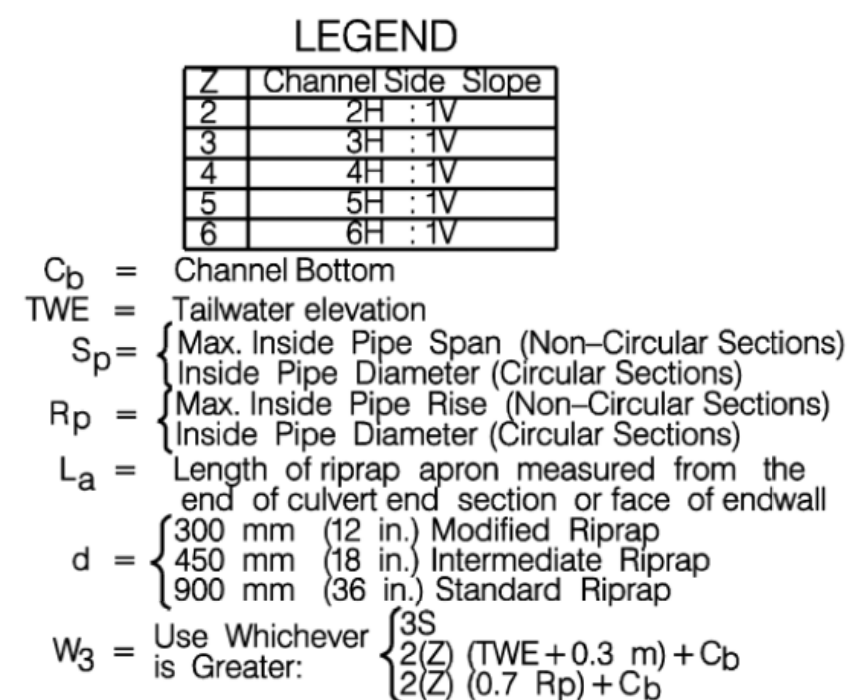
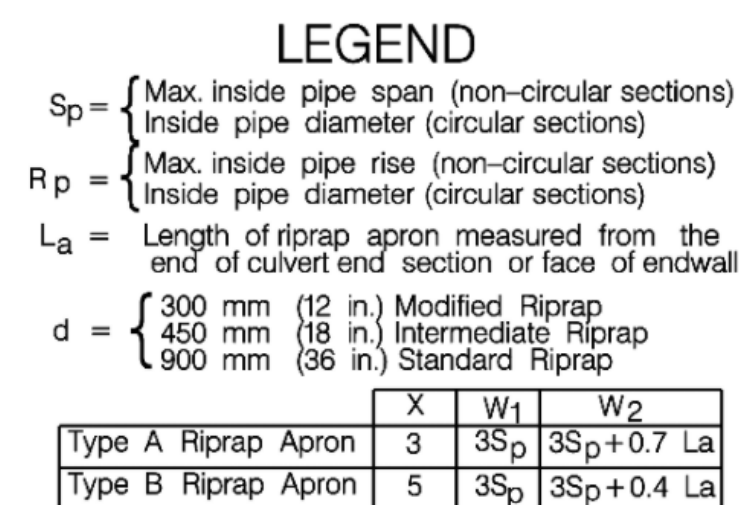


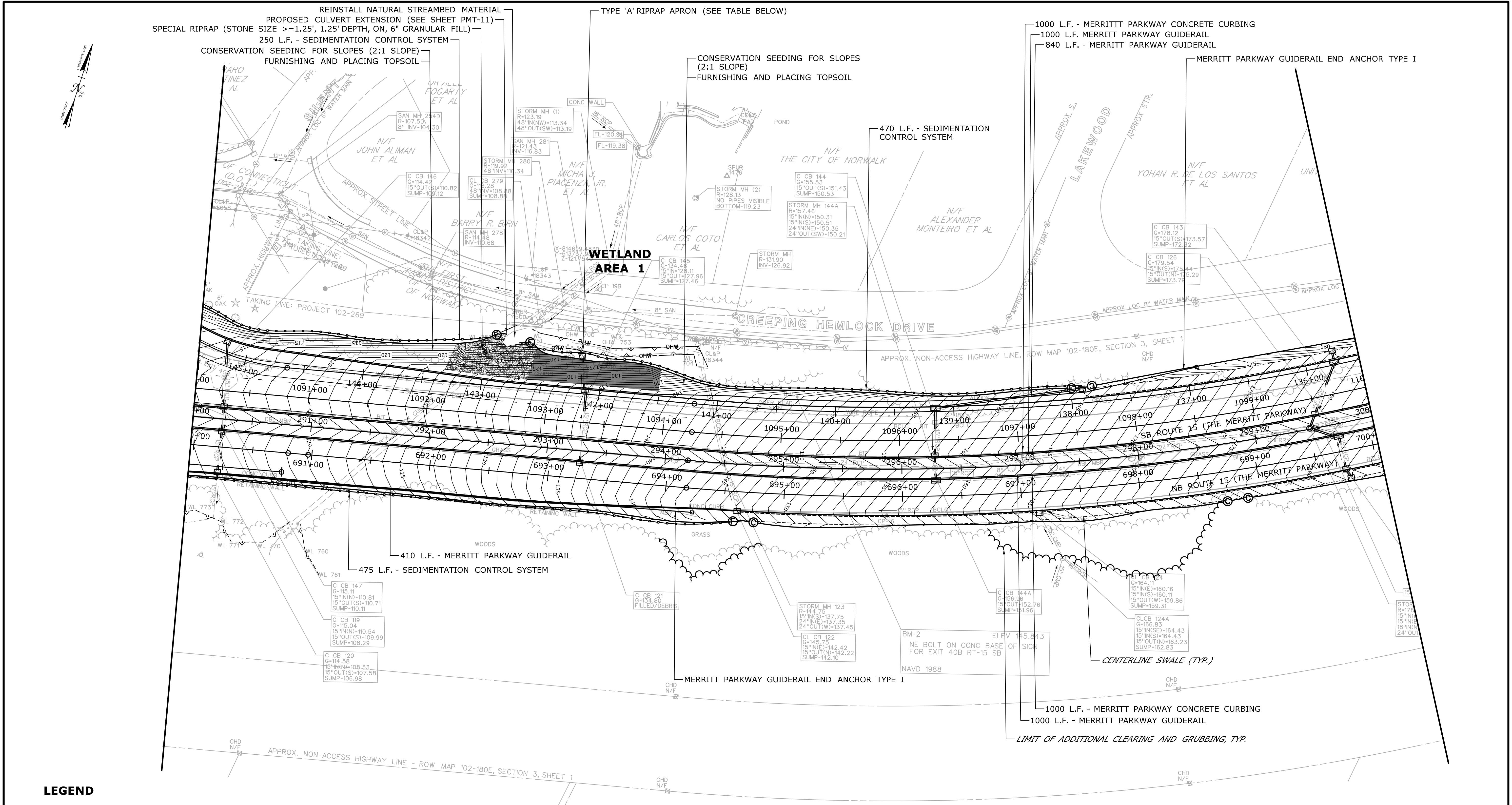


ENVIRONMENTAL PERMIT PLANS - 05/05/20

				DESIGNER/DRAFTER: SMT		 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRDIGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b> DRAWING TITLE: <b>PERMIT PLAN INDEX SHEET</b>	PROJECT NO. <b>0102-0368</b> DRAWING NO. <b>PMT-03</b> SHEET NO.	
				CHECKED BY: NAI							
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020		Filename: ...\\HW_MSH_0102-0368_PMT-03.dgn					



[illegible]



LEGEND

- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- ORDINARY HIGH WATER
- EROSION CONTROL MATTING (TYPE D)
- RIPRAP FOR OUTLET APRONS/PREFORMED SCOUR HOLES AND SLOPE PROTECTION

OUTLET PROTECTION TABLE

STATION	OFFSET	RIPRAP SIZE	L	W	W	D
293+25	77' LT	STANDARD	5'*	4'	8'	36"

\*DO NOT ENTER WETLANDS

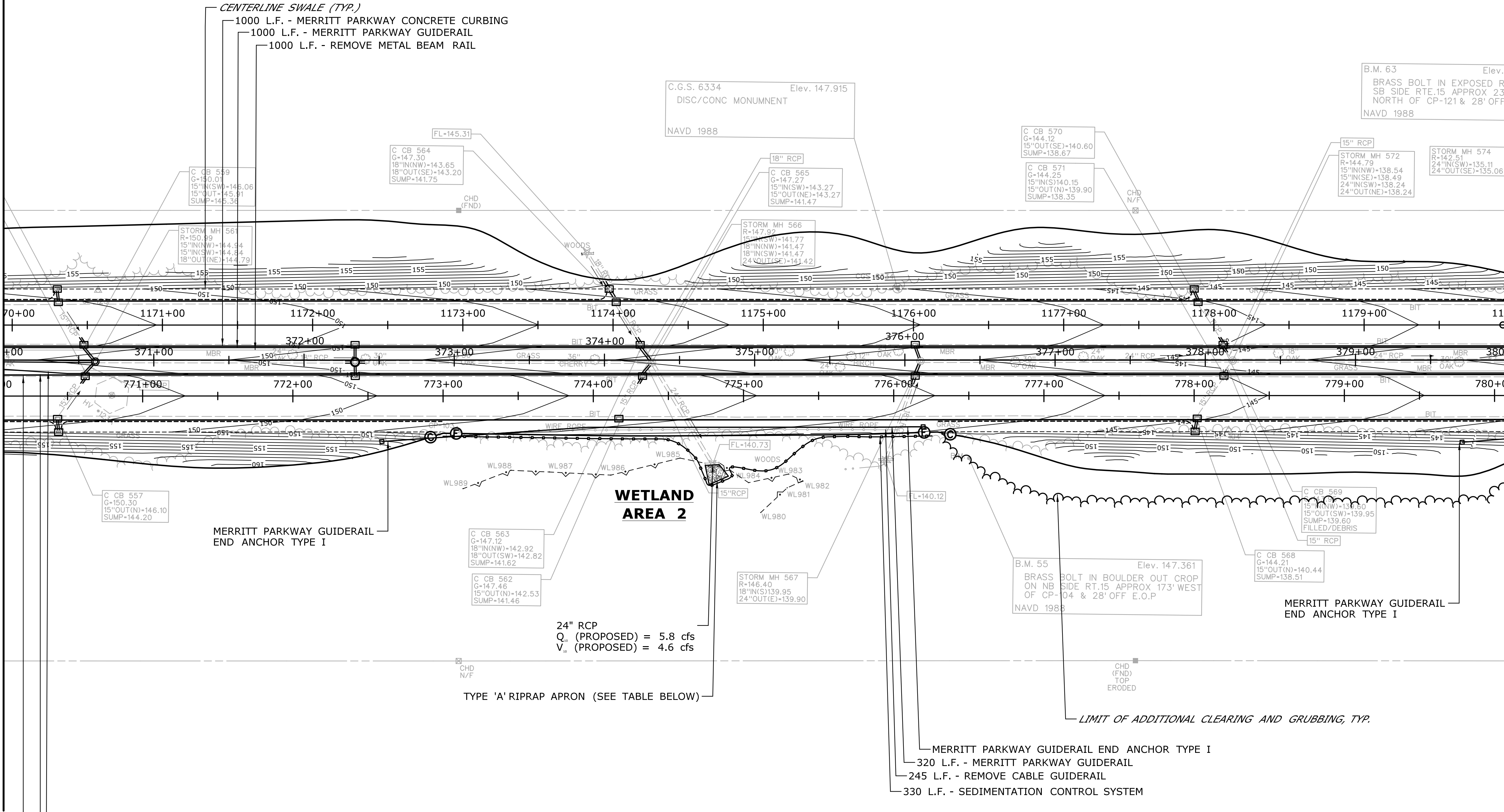
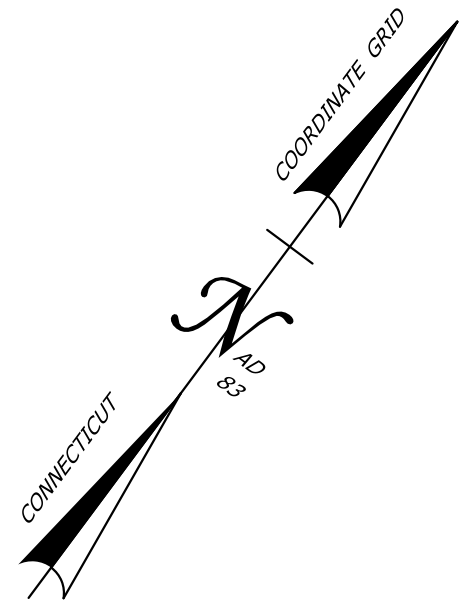
GENERAL NOTES

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES GREATER THAN 2:1 SHALL BE PROTECTED BY EITHER SPECIAL RIPRAP (1.25' DEPTH, ON, 6" GRANULAR BASE) OR EROSION CONTROL MATTING (TYPE D).
- DISTURBED AREAS BELOW THE WETLAND LIMIT SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE SEEDED WITH CONSERVATION SEEDED FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.
- INVASIVE SPECIES CONTROL SHALL BE COMPLETED WITHIN THE PROJECT LIMITS WHEREVER EXISTING GROUND IS BEING DISTURBED.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE IN FEET 0 40 80 SCALE 1"=40'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...\\HW_MSH_0102-0368_PMT-05.dgn	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT DRAWING TITLE: HIGHWAY PLAN	PROJECT NO. 0102-0368 DRAWING NO. PMT-05 SHEET NO.
------	------	----------------------	-----------	------------------------	---	--	---	--	--	--





1000 L.F. - MERRITT PARKWAY  
CONCRETE CURBING  
1000 L.F. - MERRITT PARKWAY GUIDERAIL  
1000 L.F. - REMOVE METAL BEAM RAIL

LEGEND

- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- RIPRAP FOR OUTLET APRONS/PREFORMED SCOUR HOLES AND SLOPE PROTECTION

OUTLET PROTECTION TABLE

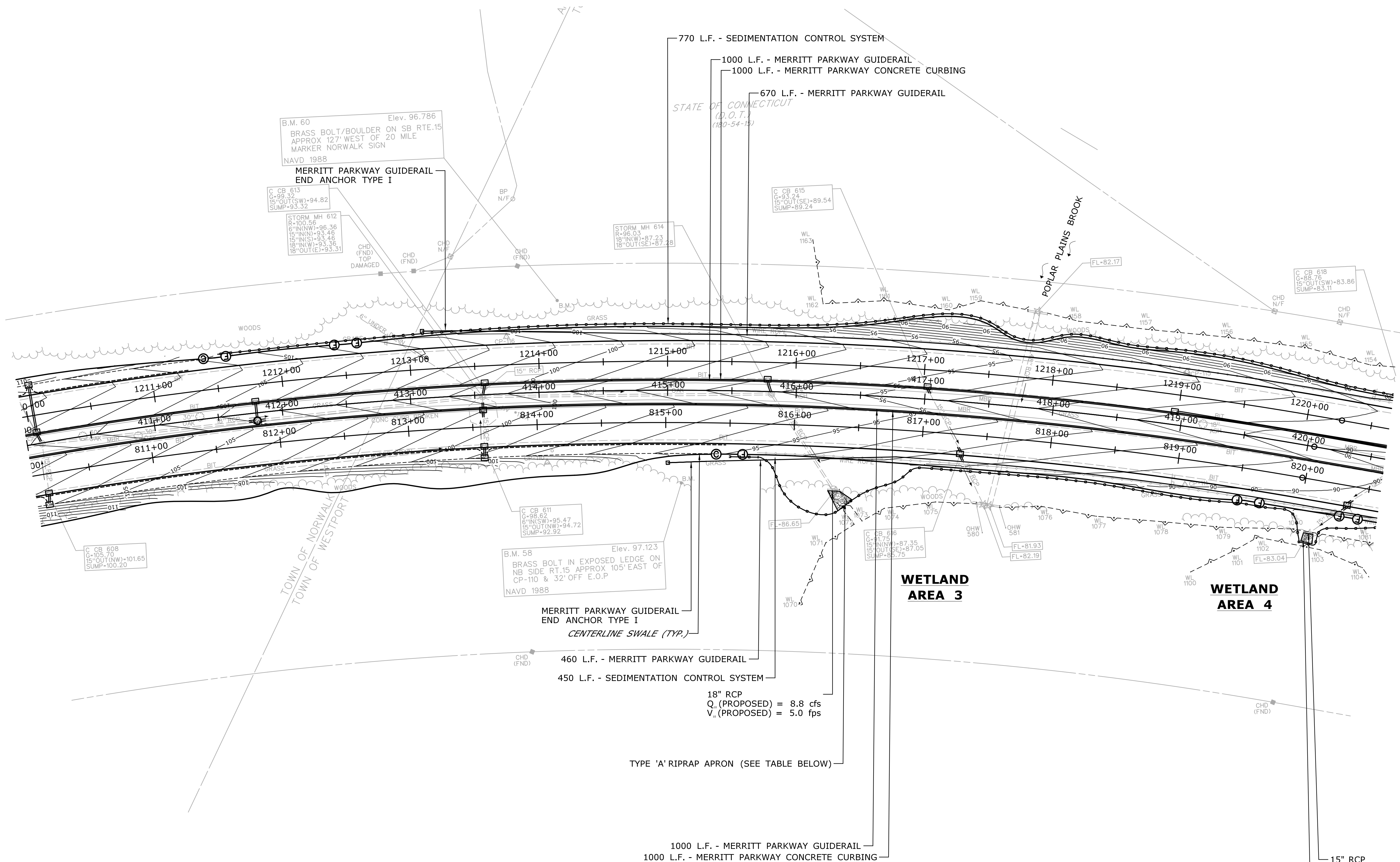
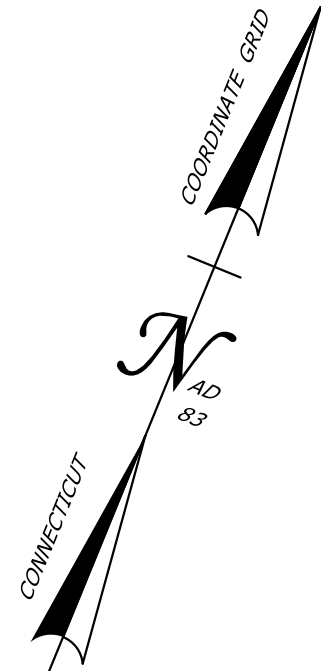
STATION	OFFSET	RIPRAP SIZE	L	W	W	D
374+75	68' RT	MODIFIED	11'	6'	14'	12"


GENERAL NOTES

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES 2:1 OR LESS SHALL RECEIVE CONSERVATION SEEDING FOR SLOPES AND TOPSOIL.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE IN FEET 0 40 80 SCALE 1"=40'	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\HW...MSH_0102-0368_PMT-06.dgn	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b> DRAWING TITLE: <b>HIGHWAY PLAN</b>	PROJECT NO. <b>0102-0368</b> DRAWING NO. <b>PMT-06</b> SHEET NO.
------	------	----------------------	-----------	------------------------	---	--	--	---	---	--



- LEGEND**
- SEDIMENTATION CONTROL SYSTEM (SCS)
  - - - STATE/FEDERAL WETLANDS
  -  RIPRAP FOR OUTLET APRONS


**OUTLET PROTECTION TABLE**

STATION	OFFSET	RIPRAP SIZE	L	W	W	D
416+50	75' RT	MODIFIED	14'	5'	14'	12"
420+00	66' RT	MODIFIED	7'	4'	9'	12"

**GENERAL NOTES**

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES 2:1 OR LESS SHALL RECEIVE CONSERVATION SEEDING FOR SLOPES AND TOPSOIL.

**ENVIRONMENTAL PERMIT PLANS - 05/05/20**

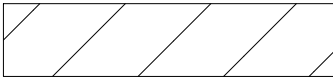
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE IN FEET 0 40 80 SCALE 1"=40'	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\HW_MSH_0102-0368_PMT-07.dgn	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b> DRAWING TITLE: <b>HIGHWAY PLAN</b>	PROJECT NO. <b>0102-0368</b> DRAWING NO. <b>PMT-07</b> SHEET NO.
------	------	----------------------	-----------	------------------------	---	--	--	---	---	--




WATERCOURSE/WETLAND IMPACT TABLE

WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

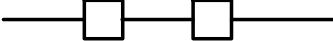
LEGEND



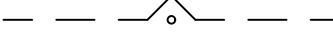
TEMPORARY WETLAND/WATERCOURSE IMPACT




PERMANENT WETLAND/WATERCOURSE IMPACT




SEDIMENTATION CONTROL SYSTEM (SCS)



STATE/FEDERAL WETLANDS



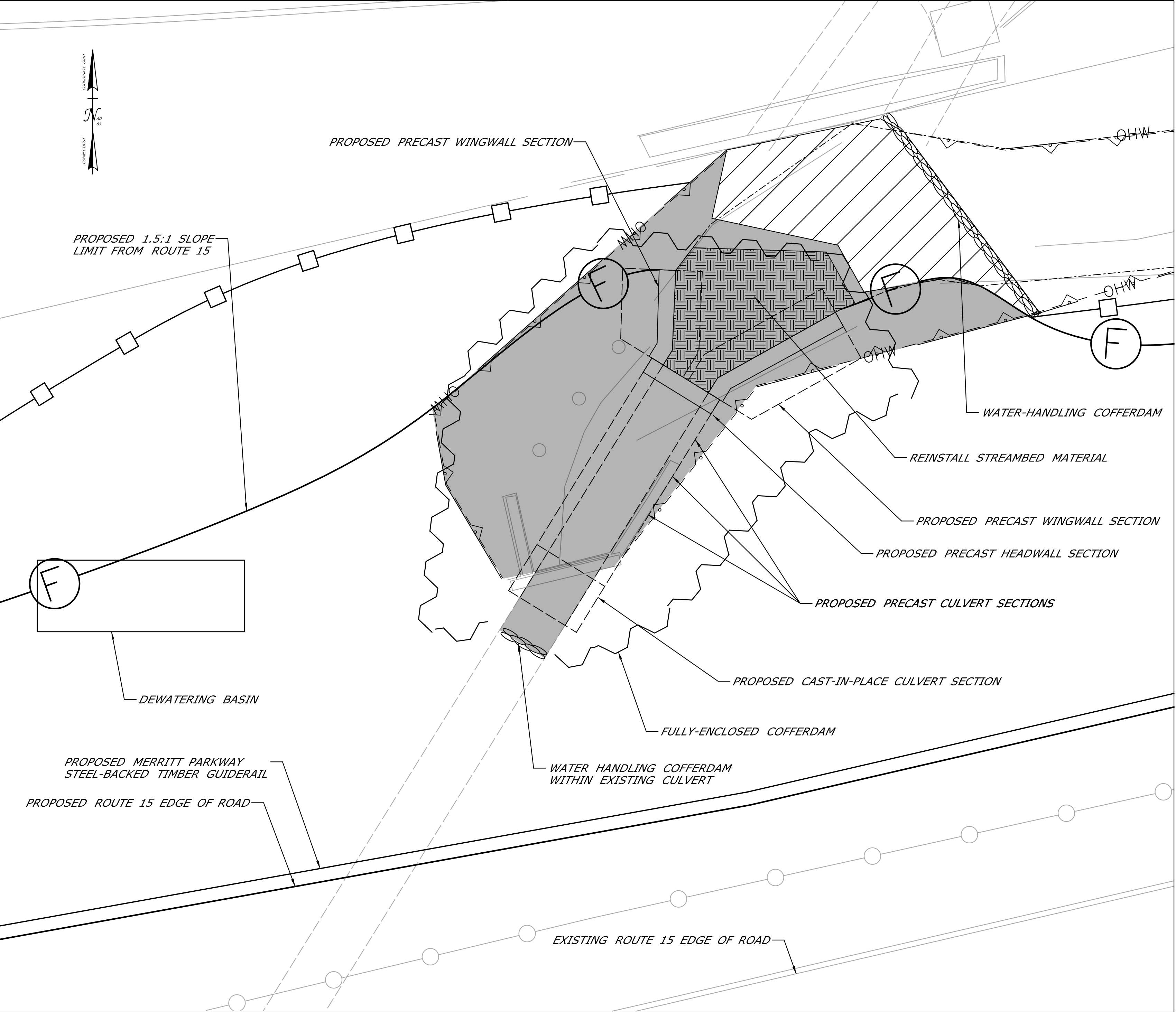
ORDINARY HIGH WATER (OHW)



NATURAL STREAMBED MATERIAL

GENERAL NOTES

1. THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.



WETLAND AREA 1: CULVERT EXTENSION  
WETLAND/WATERCOURSE IMPACT DETAIL

ENVIRONMENTAL PERMIT PLANS - 06/16/20

REV.

DATE

REVISION DESCRIPTION

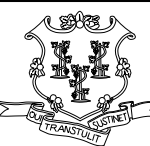
SHEET NO.

Plotted Date: 6/16/2020

DESIGNER/DRAFTER:  
WJPG

CHECKED BY:  
NAI

SCALE: 1" = 5'



STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW\_MSH\_0102-0368\_PMT-08.dgn

SIGNATURE/  
BLOCK:  
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

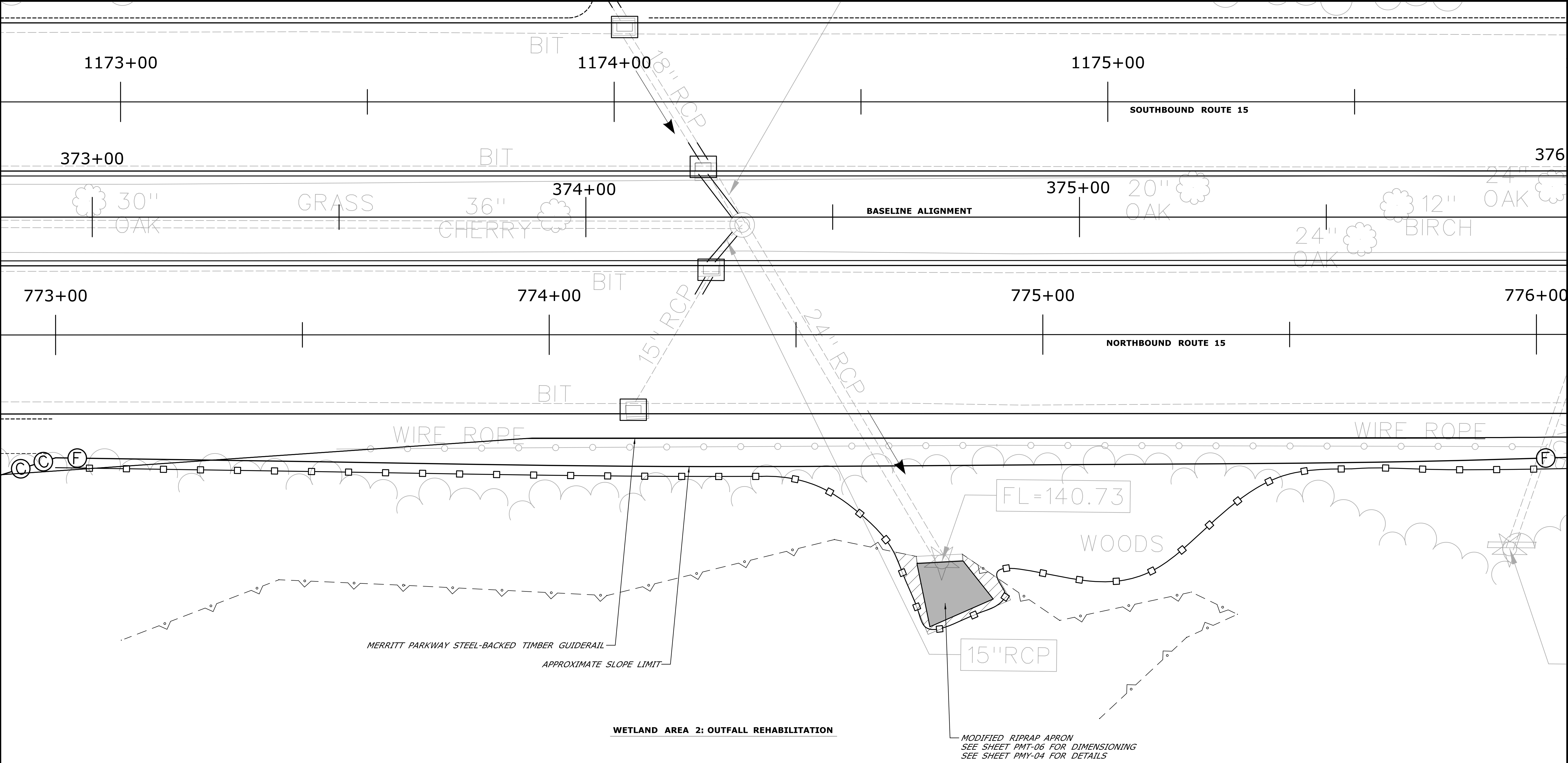
TOWN:  
NORWALK  
WESTPORT

DRAWING TITLE:  
WETLAND/WATERCOURSE  
IMPACT PLAN

PROJECT NO.  
0102-0368

DRAWING NO.  
PMT-08

SHEET NO.



LEGEND

TEMPORARY WETLAND/WATERCOURSE IMPACT

PERMANENT WETLAND/WATERCOURSE IMPACT

SEDIMENTATION CONTROL SYSTEM (SCS)

STATE/FEDERAL WETLANDS

OHW

ORDINARY HIGH WATER (OHW)

WATERCOURSE/WETLAND IMPACT TABLE					
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

- GENERAL NOTES
1.

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2.

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.

DATE

REVISION DESCRIPTION

SHEET NO.

Plotted Date: 5/7/2020

DESIGNER/DRAFTER:  
WJPG

CHECKED BY:  
NAI

SCALE: 1" = 10'

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW\_MSH\_0102-0368\_PMT-09.dgn

SIGNATURE/  
BLOCK:  
  
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:  
  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

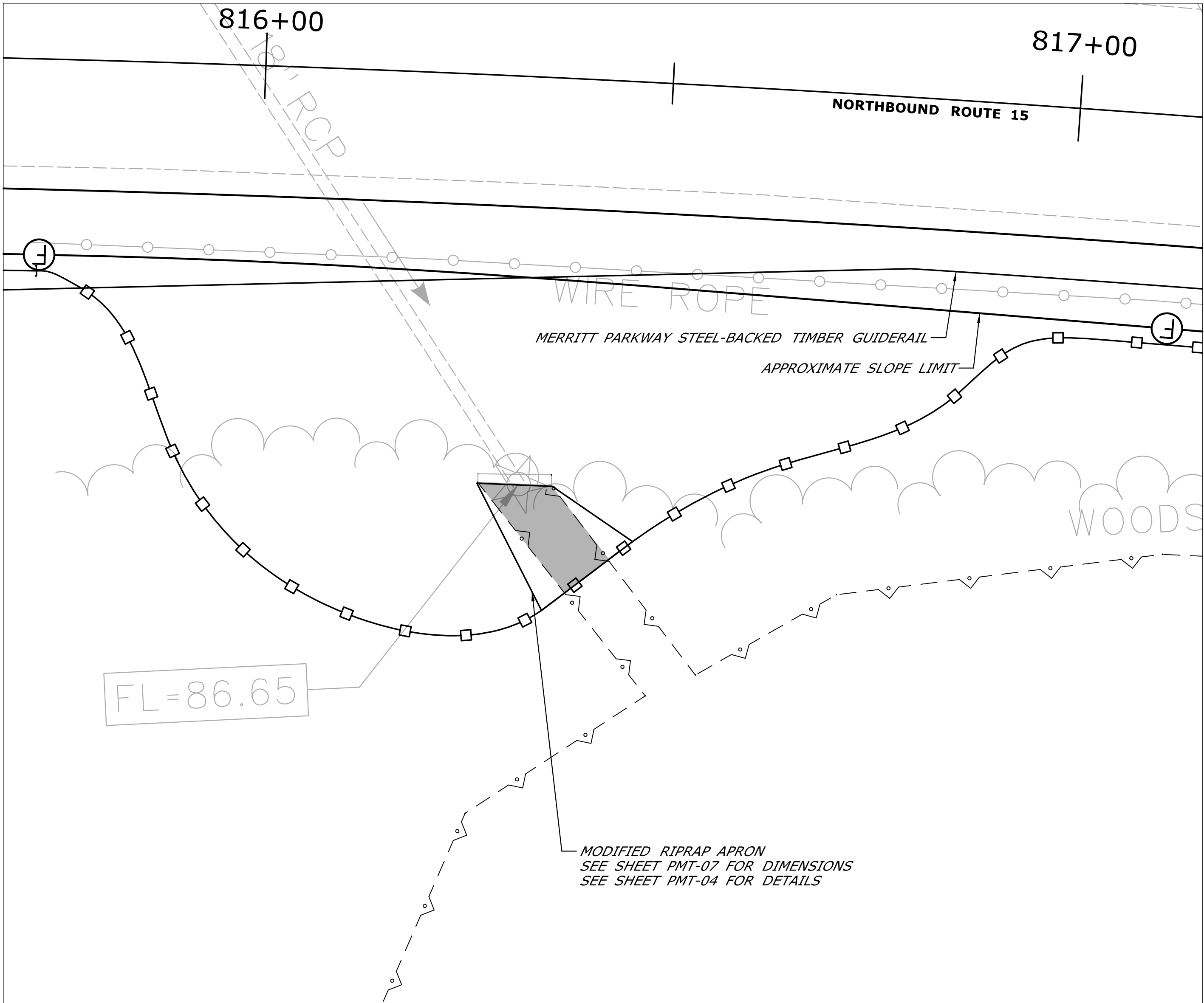
TOWN:  
  
NORWALK  
WESTPORT

DRAWING TITLE:  
  
WETLAND/WATERCOURSE  
IMPACT PLAN

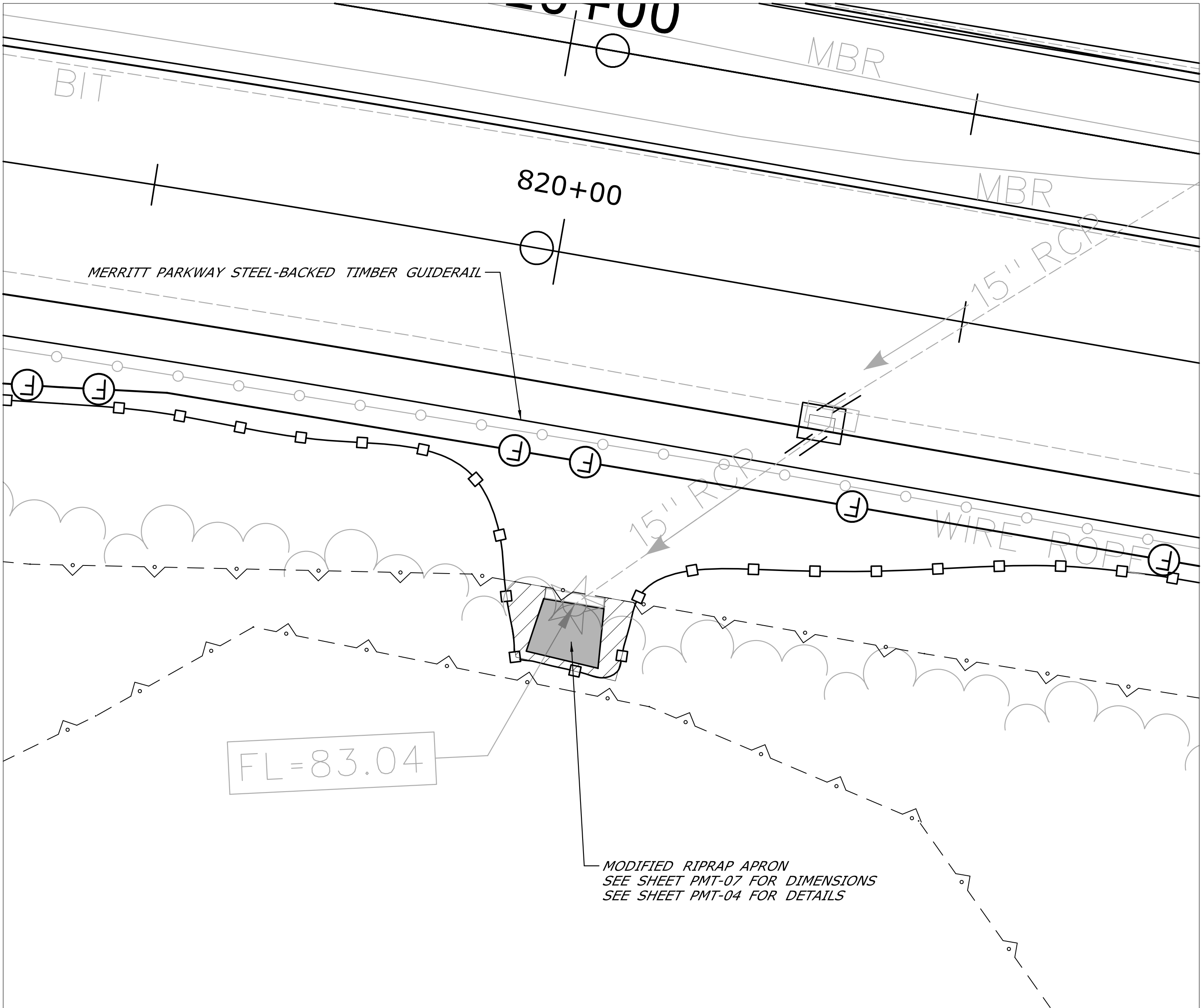
PROJECT NO.  
  
0102-0368

DRAWING NO.  
  
PMT-09

SHEET NO.



WETLAND AREA 3: OUTFALL REHABILITATION



WETLAND AREA 4: OUTFALL REHABILITATION

LEGEND

TEMPORARY WETLAND/WATERCOURSE IMPACT

PERMANENT WETLAND/WATERCOURSE IMPACT

SEDIMENTATION CONTROL SYSTEM (SCS)

STATE/FEDERAL WETLANDS

OHW

ORDINARY HIGH WATER (OHW)

WATERCOURSE/WETLAND IMPACT TABLE					
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

- GENERAL NOTES
1.

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2.

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT TEHE NOTED REGULATED AREAS.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.

DATE

REVISION DESCRIPTION

SHEET NO.

Plotted Date: 5/7/2020

DESIGNER/DRAFTER:  
WJPG

CHECKED BY:  
NAI

SCALE: 1" = 5'

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW...MSH\_0102-0368\_PMT-10.dgn

SIGNATURE/  
BLOCK:  
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

TOWN:  
NORWALK  
WESTPORT

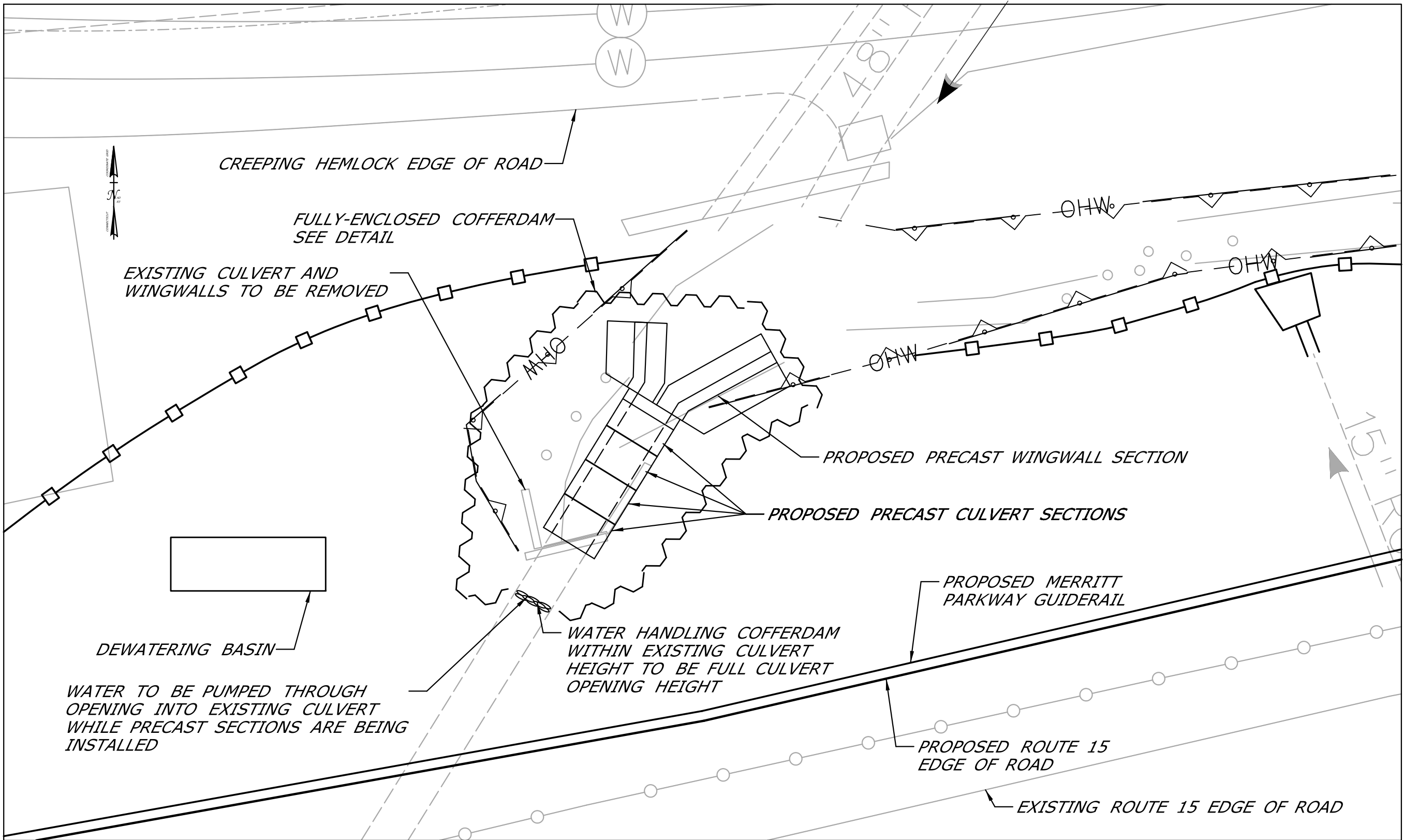
DRAWING TITLE:  
WETLAND/WATERCOURSE  
IMPACT PLAN

PROJECT NO.  
0102-0368

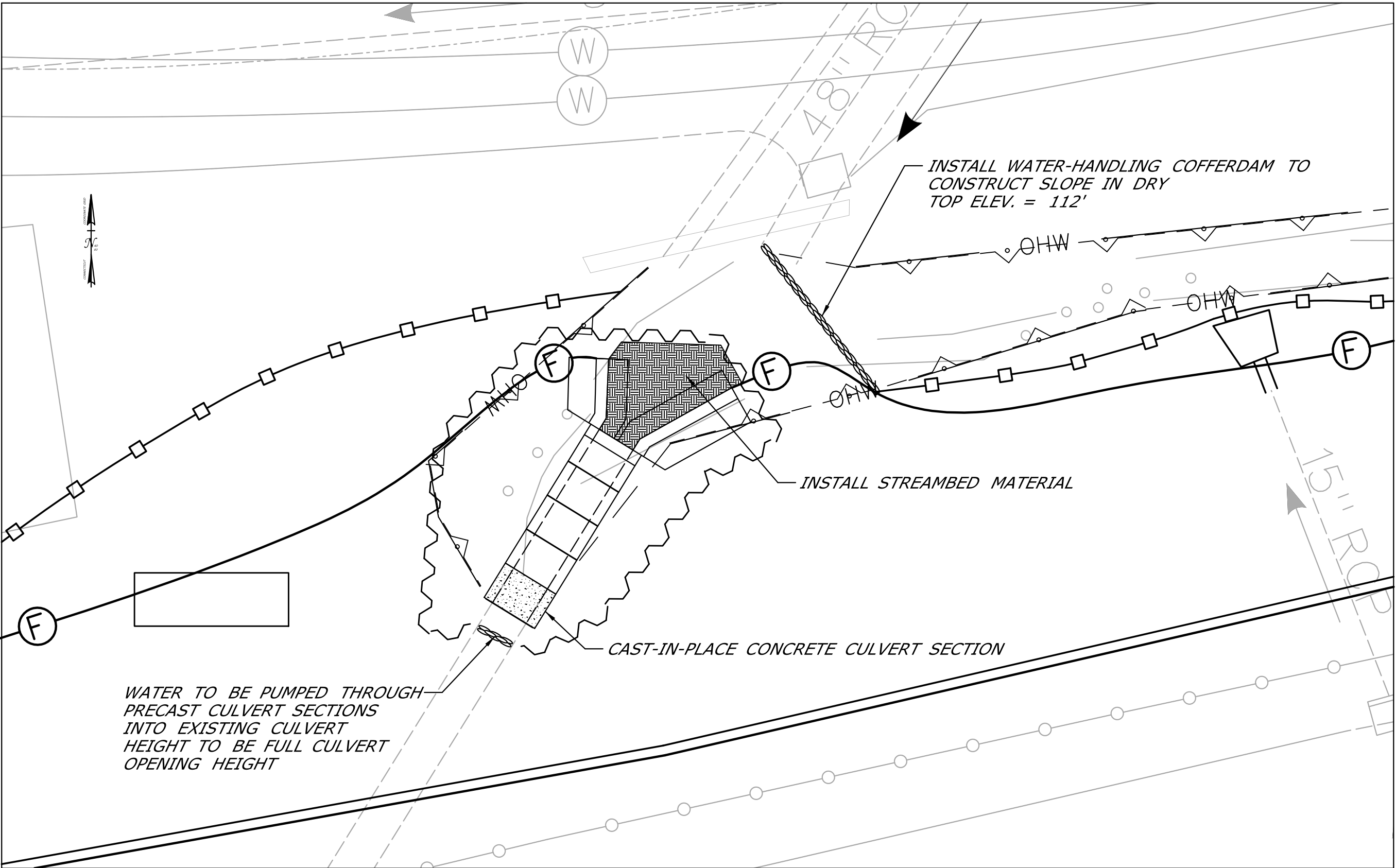
DRAWING NO.  
PMT-10

SHEET NO.

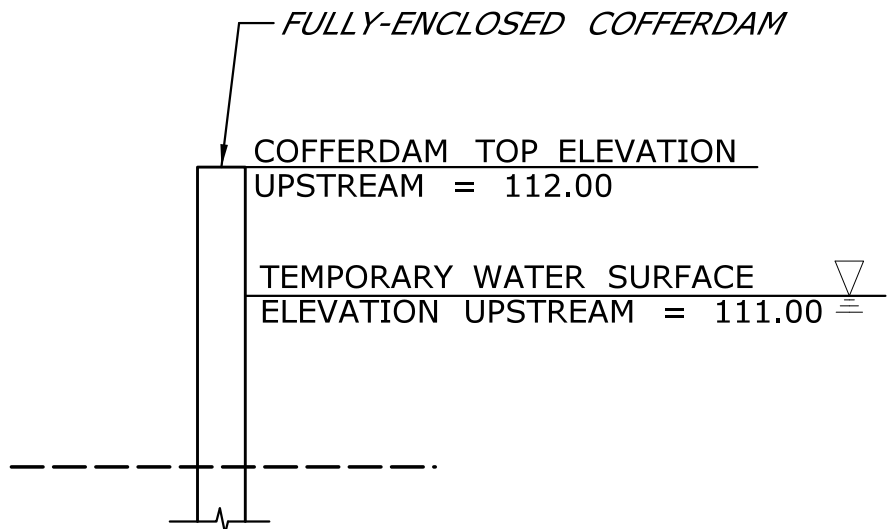




STAGE 1: INSTALL PRECAST CONCRETE CULVERT SECTIONS, WINGWALLS, AND HEADWALL



STAGE 2: INSTALL CAST-IN-PLACE CONCRETE CULVERT SECTION



COFFERDAM DETAIL

TEMPORARY HYDRAULIC DATA

AVERAGE DAILY FLOW	0.34 cfs
AVERAGE SPRING FLOW	0.66 cfs
2-YEAR FREQUENCY DISCHARGE	57 cfs
SHORT-TERM, LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 5 x AVG SPRING FLOW	4 cfs
GRAVITY FLOW BYPASS PIPE TEMPORARY DESIGN DISCHARGE = 5 x AVG SPRING FLOW	4 cfs
2-YEAR WATER SURFACE ELEVATION UPSTREAM	112 ft

SUGGESTED SEQUENCE OF CONSTRUCTION

STAGE 1:

1. INSTALL SEDIMENTATION CONTROL SYSTEM (SCS).
2. PERFORM CLEARING AND GRUBBING, AS NECESSARY. CONTROL OF INVASIVE SPECIES.
3. INSTALL TEMPORARY DEWATERING BASIN. BASIN TO REMAIN THROUGH BOTH STAGES.
4. INSTALL TEMPORARY WATER HANDLING SYSTEM INCLUDING FULLY-ENCLOSED WATER HANDLING COFFERDAMS AND PUMP. WATER HANDLING SYSTEM TO REMAIN THROUGH BOTH STAGES.
5. SAWCUT AND REMOVE EXISTING HEADWALL AND WINGWALLS.
6. INSTALL PRECAST CONCRETE CULVERT SECTIONS, WINGWALLS, AND HEADWALL.

STAGE 2:

1. RELOCATE TEMPORARY PIPE OR PUMP THROUGH NEWLY INSTALLED PRECAST CONCRETE CULVERT SECTIONS. INSTALL TEMPORARY WATER-HANDLING COFFERDAM (SANDBAGS, AS SHOWN IN STAGE 2 DIAGRAM).
2. INSTALL CAST-IN-PLACE CONCRETE CULVERT SECTION.
3. REMOVE TEMPORARY WATER HANDLING SYSTEM. COFFERDAMS ARE TO BE CUT 1' BELOW GRADE AND LEFT IN PLACE. COMPLETE FINAL GRADING OF INLET PROTECTION.
4. PERFORM FINAL GRADING, INSTALL NATURAL STREAMBED MATERIAL, RIPRAP, AND PLANTINGS/SEEDING.
5. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

WATER HANDLING NOTES

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.
2. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY WATER HANDLING SYSTEM IS NOT IN PLACE WITHOUT APPROVAL FROM THE ENGINEER.
3. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
4. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.
5. ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
6. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND IMPACT SHEETS OF THE PERMIT PLANS.
7. IF A SHORT DURATION PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND HAVE A MINIMUM CAPACITY AS SHOWN IN THE TEMPORARY HYDRAULIC TABLE. PUMP SYSTEM PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS, THE ENGINEER MAY APPROVE A CONSTRUCTION WATER HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.

IN-WATER WORK RESTRICTIONS

1. UNCONFINED INSTREAM WORK IS RESTRICTED TO THE PERIOD OF JUNE 1ST THROUGH SEPTEMBER 30TH, INCLUSIVE.

ENVIRONMENTAL PERMIT PLANS - 06/16/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/16/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE: 1" = 10'	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...\\HW_MSH_0102-0368_PMT-11.dgn	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT DRAWING TITLE: AREA 1 STAGING/ WATER HANDLING PLAN	PROJECT NO. 0102-0368 DRAWING NO. PMT-11 SHEET NO.
------	------	----------------------	-----------	-------------------------	--	---	--	---	--	--	--

NATIVE STREAMBED MATERIAL NOTES:

1.

NATIVE STREAMBED MATERIAL EXCAVATED DURING THE PRECAST CONCRETE CULVERT SECTIONS AND CAST-IN-PLACE CONCRETE CULVERT SECTION INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OUTSIDE OF THE CONCRETE CULVERT TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2.

ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3.

THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

OPENNESS RATIO (OR):

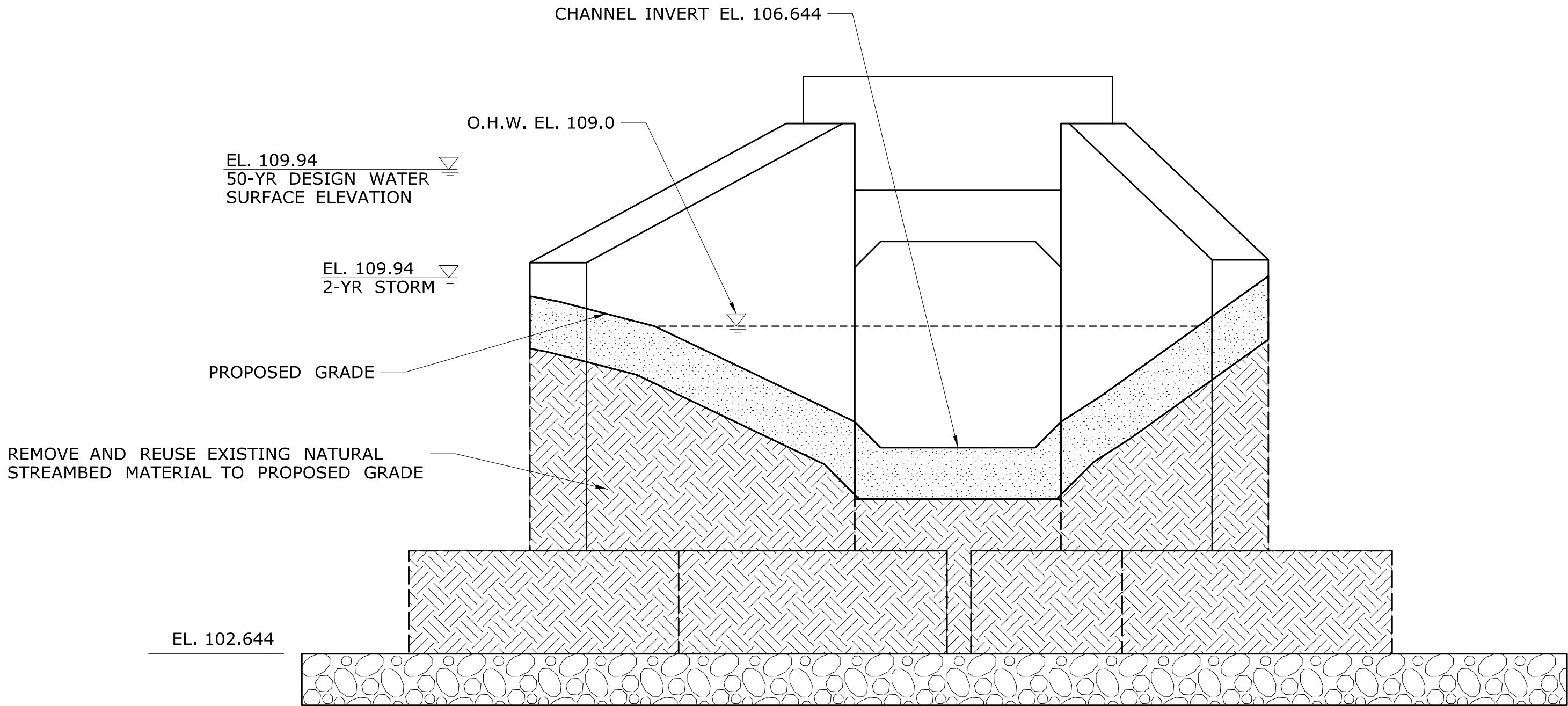
OR = OPEN AREA / CULVERT LENGTH  
OR = 15.5 S.F. / 234 FT. = 0.066 FT.  
0.066 < 0.82 FT. (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 15.85 FT UPSTREAM (OHW)  
1.2 X BFW = 19.02 FT.  
19.02 FT. > 4 FT. PROPOSED CULVER SPAN

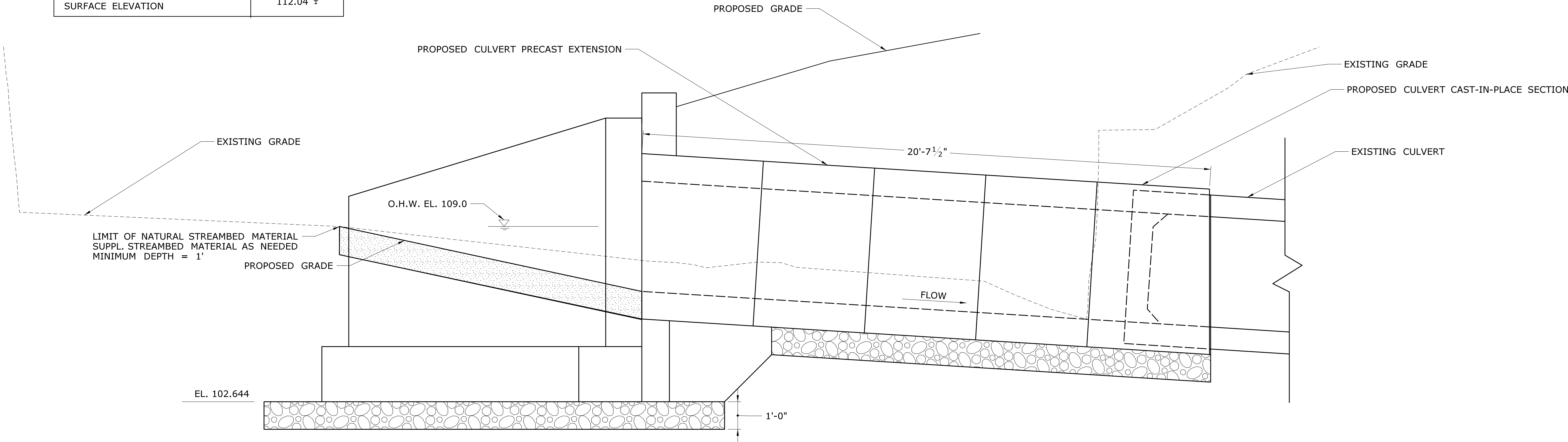
HYDRAULIC DATA

DRAINAGE AREA	0.178 SQ. MI.
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	140 CFS
AVERAGE DAILY FLOW ELEVATION	106.60 ±
50-YR UPSTREAM DESIGN WATER SURFACE ELEVATION	112.04 ±



INLET ELEVATION



SCALE: 1/2" = 1'-0"



CULVERT EXTENSION SECTION

SCALE: 1/2" = 1'-0"

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: AH	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\HW..MSH..0102-0368..PMT-12.dgn		SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b>	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b>	PROJECT NO. <b>0102-0368</b>
					CHECKED BY: KP			APPROVED BY:			DRAWING NO. <b>PMT-12</b>
											SHEET NO.
					Plotted Date: 5/20/2020						

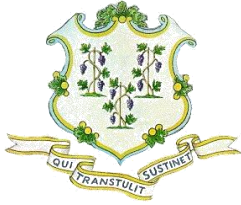
USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 4: Section 106 Coordination**





# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546



### Transmittal:

---

**From:** Mark McMillan  
**Date:** July 31, 2019  
**To:** Cathy Labadia, Deputy State Historic Preservation Officer

---

**Project:** State No.: 102-296  
F.A.P. No.: 0015(104)  
Project Title: Merritt Parkway Safety Improvements  
Route 15 from South Avenue to Newtown Turnpike  
Towns: New Canaan, Norwalk and Westport

---

**Subject:** SHPO Consultation Documentation

---

#### *Description of Activity*

Using federal and state funds, the Connecticut Department of Transportation (CTDOT) proposes to install safety improvements to a 6-mile long segment of the Merritt Parkway (Route 15). This is the eighth and final project in a series of corridor improvement projects along the Merritt. A Rehabilitation Study is currently underway that will determine the extents of deterioration and develop repair alternatives. The following actions are proposed:

- Resurfacing the roadway within the project area. Non-compliant cross slopes will be corrected to meet current standards
- Rehabilitating and restoring the historic bridges in accordance with the *Merritt Parkway Bridge Restoration Guide*
- Widening the existing shoulders from 4 feet to 8 feet that consists of 4 feet of pavement and 4 feet of reinforced grass
- Replacing the various guiderails within the project area with a standardized timber Merritt Parkway Guide Rails
- Improving safety by removing rock ledges and other fixed objects within the recommended clear zone
- Improving drainage by installing slip lined concrete curb and gutter system along the median
- Rehabilitating the existing landscaping by removing invasive species, preserving existing plants, and installing additional plantings in accordance with the *Merritt Parkway Landscape Master Plan*. This will include consulting with stakeholders regarding tree removal within the project area.

The Merritt Parkway is listed on the National Register of Historic Places (NRHP).<sup>1</sup> It is significant for both its unique bridges and landscape design. The repairs to the bridges range from minor cosmetic work to major construction. In some cases, this will require the removal of ballast material on top of the structures in order to install a new waterproof membrane beneath the roadway.

Although it is located outside the project area, minor repair work to the Lapham Road underpass (Bridge #05810) will be included in the construction of this project. Final design for the project is scheduled for May, 2020 with construction anticipated to begin later the same year.

### *Technical Review of Project*

The Merritt Parkway is a transportation corridor that was added to the NRHP in 1991. Construction began in the late 1930s and the first segment opened to traffic in 1938. The Merritt exemplifies parkway design, which combined engineering, landscaping, and architecture to create a recreational and aesthetically-pleasing transportation byway. Each bridge and overpass has a unique design, though most are executed in Art Deco or Moderne styles and use concrete as their primary construction material. George Dunkelberger, the architect of the Parkway's distinctive bridges, pushed the envelope of the material by employing sgraffito, decorative formwork, and precast architectural panels to enliven his designs.

These materials and techniques are significant character-defining features of the Merritt Parkway bridges. The 1991 *Merritt Parkway Bridge Restoration Guide* was published to address the specialized care of these features.

The project area begins at Route 124 (log mile 14.14) in New Canaan and continues northward to the Newtown Turnpike (Bridge #00726, log mile 20.24) in Westport. Within it are 20 bridge/culvert structures that range from simple concrete pipes to prominent underpass bridges. During early concept development of this project, CTDOT's bridge design team performed an in-field assessment of each of the bridges to better understand their character-defining features and current conditions. Rehabilitation measures were developed for 17 of the 20 structures. At minimum, work will typically include the following tasks:

- Removing invasive vegetation from the bridges
- Cleaning all surfaces of the bridge
- Removing graffiti and/or visually incompatible graffiti cover
- Repairing concrete with appropriate historic concrete mixes
- Installing a code-compliant guiderail system inboard of the bridge parapets; the design system will vary from bridge to bridge
- Installing pedestrian fencing on bridge underpasses (those that carry roads over the Merritt Parkway)

---

<sup>1</sup> National Park Service, *National Register of Historic Places Registration Form for Merritt Parkway* (NRHP #91000410), listed on April 17, 1991.



The following sections will describe repairs proposed for each the structures, along with some of the existing conditions and challenges that each present. It will also account for the structures that are located within the project area but are excluded from the project scope. Unless otherwise noted, all of the following are contributing elements to the Merritt Parkway historic property.

#### Bridge #05810 Lapham Road

Lapham Road lays 0.6 miles south of the project limit. The bridge was built in 1937 as a single span rigid frame structure. In 1989, its superstructure was replaced with a reinforced concrete slab. Precast concrete panels installed on the fascia recreate bridge's original segmental arch appearance. In October 2013, the fascia was damaged when it was struck by an unauthorized truck was travelling northbound (Image 1).

The bridge underwent rehabilitation in 2015, which included repairs to the deteriorating original concrete of the wingwalls and pylons. Addressing the damaged fascia was not included in that work beyond removing the broken pieces of concrete and stabilizing the fascia. Under this project, a new precast concrete fascia panel will be fabricated and installed. A mineral stain coating will be applied to the fascia from pylon to pylon to cover the existing mismatched generations of concrete.

#### Bridge #00712 South Avenue

South Avenue is a single span concrete rigid frame bridge that was built in 1937. It underwent rehabilitation in 1997 and again in 2016. During the 1997 rehabilitation, cast stone decoration was altered or removed entirely. These included a projecting belt course that spanned between the pylons on each span's fascia, two state seals set at the center of the spans and four sunburst decorations (Image 2). Under this project, the missing elements will be recreated and reinstalled. Because this bridge was recently rehabilitated, no other repairs beyond the restoration of the missing elements is required.

#### Bridge #00713 White Shade Oak

The bridge was built in 1938 and underwent a major rehabilitation in 1991. It is a single span reinforced concrete rigid frame structure (Image 3). Opposing traffic lanes are separated by a metal beam guiderail installed in the narrow median strip. During the 1991 rehabilitation, the bridge's previously uncoated concrete was painted white.

The project will perform repairs to the concrete and proposes to treat the surfaces with a mineral stain that is tinted white. Mineral stains are a type of product that bond with the concrete substrate rather than forming a film over it. It has the appearance of paint, but allows the concrete pore structure to express water vapor. This reduces the risk of damage caused by trapped moisture and freeze/thaw strains.

#### Bridge #02144 Route 15 over Fivemile River

*Bridge #02144 is a three span culvert that conveys the Five Mile River beneath Route 15. It was originally installed in 1937 and underwent rehabilitation in 1975. The culvert is rated to be in Satisfactory structural condition. No work is planned for this structure.*

#### Bridge #05811 Marvin Ridge

Bridge #00714 was a concrete rigid frame structure that was built in 1937. In 1989, it was replaced by Bridge #05811, which had a new superstructure installed on new concrete abutments. The original wingwalls and pylons of Bridge #00714 were retained and incorporated into the new bridge. These feature cast stone urns set against blue backgrounds (Image 4).

Changing from a rigid frame structure required the introduction of joints between the new superstructure and substructure. Under this project, the existing sealant in these joints will be replaced (Image 5). As with the other bridges that carry traffic over the Merritt Parkway, a pedestrian fence will be installed.

#### Bridge #00715 Route 15 over New Canaan Avenue

Bridge #00715 was built in 1937. In 1994, it underwent a substantial alteration in which the deck was replaced and the overall structure was widened to accommodate new exit ramps (Image 6). This entailed the demolition of the original wing walls and parapets. Only cleaning and minor rehabilitation work is planned for this bridge.

#### Bridge #02145 Route 15 over unnamed brook

*Bridge #2145 is a concrete box culvert that conveys an unnamed brook beneath the Merritt Parkway near mile marker 16.17. The culvert is in Satisfactory condition and has been excluded from the project scope.*

#### Bridge #00716 Comstock Hill

This single span concrete rigid frame bridge was built in 1938 and rehabilitated in 1988. Its pylons feature cast stone bas relief figures of either a pilgrim or Native American (Images 7 & 8).

The bridge exhibits horizontal cracking and efflorescence on its fascia (Image 9). Work planned include the removal of the bridge deck to facilitate the installation of a new waterproof membrane. The unsound and cracked concrete will be replaced with concrete that is formulated to match the physical qualities and appearance of the historic concrete.

The bridge have been painted with graffiti cover of different colors; resulting in a patchwork appearance (Image 10). These coatings and the underlying graffiti will be removed. If they cannot be successfully removed, the application of a uniform graffiti coating will be considered. This will require consultation with the Merritt Parkway Conservancy.

#### Bridge #00717 Silvermine Avenue

Bridge #00717 is a single span concrete rigid frame structure. It features an open baluster at its parapets and stepped pylons and endblocks (Image 11). There are minor spalls to the parapets that will be repaired under this project. On the interior face of the parapet is a cast stone state seal which is in fair condition. However, it exhibits rust stains from exposed metal attachments (Image 12). These attachments will be cleaned, treated with corrosion resistant coatings and patched.

#### Bridge #00718 Route 15 over Silvermine River

Bridge #00718 was constructed in 1958 to replace the original Parkway bridge that was destroyed by flooding. Bridge #00718 is comprised of a steel girder and concrete superstructure supported on reinforced concrete substructure (Image 13). Bridge #00718 is a non-contributing element of the Merritt Parkway. Work proposed for this structure is limited to replacing the existing metal beam rail that separates opposing directions of traffic with a Merritt Parkway median barrier.

#### Bridge #00719, Route 15 over Perry Avenue

Bridge #00719 is a single span concrete rigid frame bridge with an open baluster concrete parapet. It was recently rehabilitated and requires minimal work at this time. This project proposes to apply a color blending sealant to repairs that were installed under the previous project. The sealant will be used to blend the new patches with the surrounding original concrete (Image 14).

#### Bridge #00720, Railroad over Route 15

*Bridge #00720 is an abandoned railroad overpass that was recently rehabilitated by CTDOT for use as a bike/multi-use trail cross. It is excluded from this project.*

#### Bridge #00721, Route 15 over the Norwalk River

*Bridge is a triple bore concrete culvert that was installed in 1938 and rehabilitated in 1988. The project does not include any work on this structure.*

#### Bridges #00530A & 00530B, Main Street

*These bridges are being part of the Route 15 / Route 7 Interchange and are being addressed under State Project #102-358. They are excluded from this project.*

### Bridge #00722 West Rocks Road

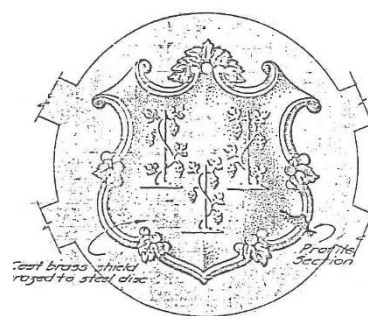
*The bridge is currently being rehabilitated under State Project #102-356 and is excluded from this scope of work.*

### Bridge #00723 East Rocks Road

The bridge is single span, rigid frame concrete structure that features Art Deco detailing including fluted ziggurat shaped pylons, precast sunburst ornaments. Cast stone state seals are installed in center of each fascia. The bridge underwent repairs in 2008, at which time a pedestrian fencing added. Minimal repairs are anticipated for this bridge. The existing median barrier that separates opposing directions of traffic will be replaced with a Merritt Parkway median barrier.

### Bridge #00724 Grumman Avenue

The bridge is a single span, concrete rigid frame structure that carries Grumman Avenue over Route 15. Detailed in Moderne decoration with rectangular, stepped pylons (Image 15). Bridge features precast 'sgraffito' style panels set in upper portion of pylons depicting gryphons (Image 16). Abutment walls feature triangular pattern above coffered panels.



**Drawing of bronze shield decoration.**

The parapets consists of open metal grill panels set between steel posts. Each of the circles in the panels originally features brass shields, all of which are now missing. The metal railing panels exhibit corrosion and will need both repainting and repair.

### Bridge #03218 (Culvert)

*The bridge is a single bore concrete box culvert. It is excluded from the current scope of work.*

### Bridge #00725 Route 53 (Chestnut Hill Road)

The bridge is single span barrel arch structure with classical detailing. This bridge has been recently repaired; however some of the patches applied are not a good visual match to the surrounding original concrete (Image 17). Under this project, a color matched stain will be applied to blend the recent patches.

### Median Tree Removal

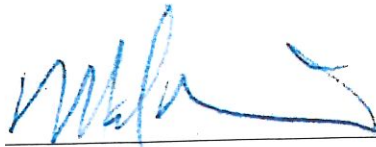
Throughout the 6-mile segment of the project area, the opposing lanes of traffic are separated by a median (Image 18). In some areas, the median is only wide enough to accommodate a metal beam guiderail. The majority of the project features a median that includes a verge of grass of mature trees. There are approximately 100 trees in the median within the project area.

Although the project design has not yet addressed the extent of tree pruning and/or removal, it is expected that some will be required under this project. The issue of managing trees along the Merritt Parkway has come under discussion between CTDOT and other stakeholders recently. Although not resolved, steps have been taken to objectively assess the health and viability of median trees to determine whether they should be removed or not. Other issues such as creating a naturalistic clear zone on the shoulders of the road have been developed in collaboration with the Merritt Parkway Conservancy and CTDOT.

The Office of Environmental Planning has provided the following recommendations for the work to supplement the Standards and Guidelines outlined in the introduction of this document:

- Design changes, such as the installation of pedestrian fencing, should be presented to the Merritt Parkway Conservancy for their consideration and input. As with previous Merritt Parkway projects, an on-going consultation with the Merritt Parkway Conservancy is recommended throughout design and construction.
- Metal Restoration: Several of the bridges feature metal structural and decorative elements. The Grumman Avenue overpass (Bridge #00724) will require repair to corroded elements of its parapet panels. Consider replicating/reinstalling the missing bronze ornament to the Grumman Avenue parapets.
- Coatings Testing: Prior to construction, collect paint samples from the steel girders on the New Canaan Avenue (Bridge #00715) and the metal railings on Grumman Avenue (Bridge #00724). The purpose of the samples is to determine the color scheme(s) used on each of the bridges. Given the age of the bridges, there is a high probability that the coatings will contain hazardous materials such as lead. Testing should be conducted prior to disturbing these coatings.
- Coatings Removal: Several of the bridges feature coatings that will require removal. These include removal of previous failing coatings on metal elements, graffiti cover applied to concrete and non-historic coatings that mask the original finish of the bridge. An absorbent media abrasive system, such as that produced by SpongeJet, has been successfully used on other bridges of the Merritt Parkway to remove coatings without damaging the underlying substrate.
- Median Tree Removal: Prior to removing any trees from the median of the project area, retain a certified arborist to determine the health/viability of each tree that is proposed to be removed. Consult with stakeholders such as the Merritt Parkway Conservancy and State Historic Preservation Office prior to finalizing decisions regarding median tree removal.

Assuming these guidelines are incorporated into the project design, the Office of Environmental Planning recommends a determination of No Adverse Effect on Historic Properties in accordance with Section 106 of the National Historic Preservation Act.



Mark McMillan  
National Register Specialist  
Office of Environmental Planning  
Connecticut Department of Transportation

**SHPO Use Only**

Based on the information provided to the State Historic Preservation Office, we:



Concur



Do Not Concur *(additional comments attached)*

with CTDOT's Office of Environmental Planning's opinion that  
State Project #102-296 in New Canaan / Norwalk / Westport will cause:

**No Adverse Effect to Historic Properties**



Catherine Labadia  
Deputy State Historic Preservation Officer

8/27/19

Date



Department of Economic and  
Community Development

**Connecticut**  
still revolutionary





Image 1: Lapham Avenue underpass (Bridge #05810) after being struck by a truck in October, 2013.



Image 2: West face of Bridge #00712 (South Avenue over Merritt). The inset detail shows the original cast stone state seal and sunburst decorations that were removed during the 1997 rehabilitation. The recreated seal and sunburst will be installed in the center of fascia (location outlined in red).





Image 3: White Shade Oak underpass (Bridge #00713)



Image 4: Bridge 05811 – Marvin Ridge Road over Route 15.





**Image 5: Joints (outlined in red) to be cleaned and sealed on Bridge #05811.**



**Image 6: Bridge #00715 – Route 15 over New Canaan Avenue. The outer 2 girders were added in 1994 when the bridge was widened.**





Image 7: Bridge #00716, Comstock Hill Road.



Image 8: Detail of cast stone figures set into the wing walls of Bridge #00716.





Image 9: Detail of cracking, rust stains, and efflorescence on fascia of Bridge #00716.



Image 10: Detail of graffiti cover applied to Bridge #00716, Comstock Hill Road.





Image 11: Solid concrete parapet and steel guiderail was installed as part of the 1990 rehabilitation. On the outer three spans, a reinforced concrete girder replaced the original stepped fascia seen in Image 4.



Image 12: Cast stone state seal on the interior face of the parapet of Bridge #00717. The seal is stained by exposed metal attachments that are corroding.





**Image 13: Bridge #00718 – Route 15 over the Silvermine River. This bridge was constructed in 1958 to replace the original Merritt Parkway bridge that had been destroyed by a flood.**



**Image 14: Detail of previous repairs to Bridge #00719 (Perry Avenue overpass). These patches will be treated with a color matched sealant to bring their appearance closer to that of the surrounding original concrete.**





Image 15: Bridge #00724, Grumman Avenue underpass.



Image 16: Detail of “sgraffito” cast stone panels on Bridge #00724.





**Image 17: Patches on Bridge #00724 (Chestnut Hill Road overpass).** A color matched sealant will be applied to these repairs to blend them with the surrounding original concrete.



**Image 18: Median trees on near mile mark 16.2.** Trees along the Parkway and in the median are part of the planned landscape design of the Merritt Parkway.

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 5: THPO Coordination**





U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Connecticut Division**

Corrected September 9, 2019  
September 6, 2019

628-2 Hebron Avenue  
Suite 303  
Glastonbury, CT 06033  
860-659-6703  
860-659-6724  
Connecticut.FHWA@dot.gov

In Reply Refer To:  
HDA-CT

Dear CTDOT Cultural Resources Unit:

The Federal Highway Administration (FHWA) has conducted and concluded tribal consultation for transportation undertakings, as requested by your office. On 6 August 2019, FHWA electronically delivered information about applicable undertakings to Federally recognized Indian tribes who have an identified area of interest in the project area.

*We did not receive any comments.*

**The following undertakings have undergone tribal consultation:**

State Project Number	Description	Summary Comments Received from Tribe(s)
0043-0132	<i>Bridge #02166 Rehabilitation (East Haven &amp; New Haven, New Haven County)</i>	No comments
0102-0296	<i>Merritt Parkway Safety Improvements - South Avenue to Newtown Turnpike (New Caanan, Norwalk, Westport, Trumbull, Fairfield County)</i>	No comments
0158-0215	<i>Route 1 Operational Lanes Improvements (Westport, Fairfield County)</i>	No comments
0082-0322	<i>Closure of Miller Street Access to Route 9 (Middletown, Middlesex County)</i>	No comments

With this letter, Tribal consultation is concluded for the undertakings identified herein. Please work with our office to resolve any substantive comments provided by Tribes. FHWA appreciates your continued cooperation in tracking Tribal consultation outcomes and your assistance in ensuring that commitments made to Tribes are met. If you have any questions, please contact me telephone at 860-494-7577 or by email at [emilie.holland@dot.gov](mailto:emilie.holland@dot.gov).

Sincerely,

**M EMILIE  
HOLLAND**

M. Emilie Holland  
Environmental Protection Specialist  
FHWA Connecticut Division

Digitally signed by M EMILIE  
HOLLAND  
Date: 2019.09.09 12:24:44  
-04'00'

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 6: USWFS Verification Letter: Programmatic Biological Opinion on Final 4(d) Rule for  
the Northern Long-eared Bat and Activities Excepted from Take Prohibitions**



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>



In Reply Refer To:

May 21, 2020

Consultation Code: 05E1NE00-2020-TA-2656

Event Code: 05E1NE00-2020-E-08041

Project Name: CTDOT 0102-0368

Subject: Verification letter for the 'CTDOT 0102-0368' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Michael Salter:

The U.S. Fish and Wildlife Service (Service) received on May 21, 2020 your effects determination for the 'CTDOT 0102-0368' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"<sup>[1]</sup> prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

---

**Action Description**

You provided to IPaC the following name and description for the subject Action.

**1. Name**

CTDOT 0102-0368

**2. Description**

The following description was provided for the project 'CTDOT 0102-0368':

CT DOT Project No. 0102-0368 involves Merritt Parkway (Route 15) safety improvements, resurfacing, enhancements and bridge improvements from Route 15 over Main Avenue in Norwalk to Route 15 over Newtown Turnpike in Westport. Additionally, the deceleration lane for the Route 15 Southbound Exit 40B will be extended approximately 1,010 feet. Extension of the deceleration lane requires extension of an existing 4' x 4' box culvert carrying an unnamed brook under Route 15.

This project has been initiated by the Connecticut Department of Transportation (Department) as part of a corridor improvement effort to provide safety improvements and enhancements to the Merritt Parkway, while maintaining its unique character and aesthetics. This is the 8th and final project in a series of 8 corridor improvement projects on the Merritt Parkway. With completion of this project 100% of the Parkway will be upgraded.

This project involves resurfacing Route 15 in both directions as well as providing various safety improvements and aesthetic enhancements. All work would conform to the "Merritt Parkway Guidelines for General Maintenance and Transportation Improvements" recommendations, prepared by the Merritt Parkway Working Group in June 1994. In addition, the project will rehabilitate and restore historic bridge structures in accordance with the "Merritt Parkway Bridge Restoration Guide" dated May 2002.

Roadway improvements include the following: widening the existing shoulders to 8-feet (4-foot paved shoulder and 4-foot reinforced grass shoulder); replacing the existing variety of guiderail with Merritt Parkway Guide Rail (steel backed timber railing); correcting existing cross slopes of the roadway to meet standards; removing rock ledges and other fixed objects within the recommended clear zone or protecting it with Merritt Parkway Guide Rail or Merritt Parkway Concrete Barrier; installing a slip lined concrete curb and gutter system along the median for drainage and delineation purposes; limited full-depth pavement replacement under bridges and patching of other deteriorated areas; resurfacing of the roadway; installing new drainage; installing Merritt Parkway Median Barrier in areas where the width of the roadway is limited.

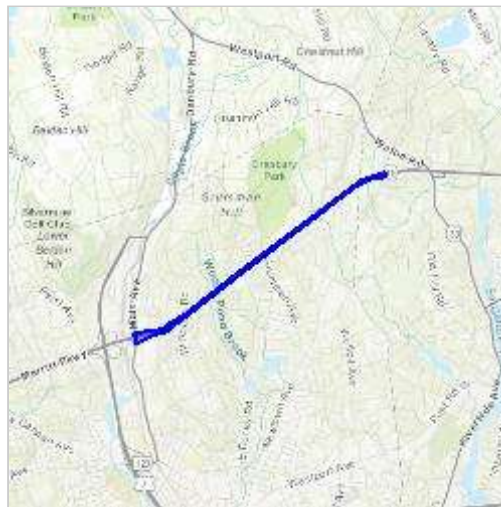
---

The bridges within the project limits will require minor cosmetic work (various parapet work, graffiti removal, surface and crack repairs to concrete, fencing, overlay, etc). Some bridges may require major work including removing the material on top of the bridge to expose the concrete arch or frame; repairing any deteriorated sections; applying a waterproofing membrane; re-establishing the roadway to its original profile; performing any necessary underside repairs; and finally cleaning the bridge.

Additionally the existing Route 15 Southbound Exit 40B deceleration lane will be extended from 260 feet to 1,270 feet. In order to extend the deceleration lane, an existing 4-foot by 4-foot box culvert carrying an unnamed watercourse below Route 15 will need to be extended. The box culvert will be extended at the inlet approximately 18 feet to the north in order to accommodate the proposed slopes for the deceleration lane.

The project is scheduled to start construction in spring 2021 and is scheduled to take two construction seasons.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.152710495205454N73.40482237316763W>



### Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR

§17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

**Determination Key Description: Northern Long-eared Bat 4(d) Rule**

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

---

## Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

## Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?  
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")  
No
3. Will your activity purposefully **Take** northern long-eared bats?  
No
4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?  
**Automatically answered**  
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at [www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html](http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html).

Yes

---



6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

*No*

7. Will the action involve Tree Removal?

*Yes*

8. Will the action only remove hazardous trees for the protection of human life or property?

*No*

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

*No*

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

*No*

---

## Project Questionnaire

**If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.**

1. Estimated total acres of forest conversion:

2.7

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

**If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.**

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

**If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.**

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

**If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.**

---

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 7: Interagency Coordination Meeting Notes**

# Interagency Meeting Notes

February 20, 2020

Room 2215

## January 16, 2020 Interagency Meeting Notes

- USACE staff provided clarification on the decision made during the municipal project portion of January's interagency meeting. A PCN was determined as needed for one of the projects presented that proposed to replace an existing bridge with a culvert. USACE staff indicated that replacing an open bottom structure with a closed bottom structure is considered a new installation and subject to a PCN. Replacing a culvert for a culvert would not be considered a new installation. USACE staff clarified that closed bottom culverts for drainage areas of less than one square mile are eligible for SV.
- There was a staff discussion among DOT/DEEP/USACE regarding whether all of the "automatic 401" criteria in USACE GP19 had to be met in order for any given project to be eligible for authorization via Self Verification. The discussion referred to the following language in 401 GP19 Table 1: Self-Verification column: "Granted for stream, river or brook crossings that receive **written approval** from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP." It was agreed that when there is a consensus at the ICM to allow an SV without meeting all the criteria, that the ICM notes, which are distributed, reviewed, and approved by DOT, DEEP, and USACE, should be considered as the "written approval" necessary for a project to be confirmed as eligible for a SV. USACE added that the notes should be very clear documenting the discussion and the decision made.
- There were no other comments on the January 16<sup>th</sup> Interagency Meeting notes. The notes are considered accepted.

## Project 102-368, Merritt Parkway Safety Improvement Project, Towns of Norwalk, and Westport

This project involves resurfacing Route 15 in both directions and providing various safety improvements and enhancements. Roadway improvements include the following: widening the existing shoulders to 8-feet (4-foot paved shoulder and 4-foot reinforced grass shoulder); replacing the existing guiderail; correcting existing cross slopes of the roadway to meet standards; removing rock ledges and other fixed objects within the recommended clear zone; installing a concrete curb and gutter system along the median; limited full-depth pavement replacement under overpasses, pavement patching; resurfacing of the roadway; installing new drainage.

Drainage maintenance impacting wetlands will be conducted as needed at up to four (4) drainage pipe inlets and outlets. Activities may include the following: excavation of accumulated sediment, brush, or debris from within 50 feet (max) of the inlet or outlet; cleaning or reshaping the man-made drainage ways; installation or repair of drainage endwalls; repair of erosion damage. Drainage outlet work will be within the FEMA 100-year floodplain.

The project also includes the extension of the existing 40B off ramp from Route 15 SB to Creeping Hemlock Drive in Norwalk to allow for a greater deceleration distance. The lane extension will involve extension of an existing 48-inch box culvert conveying an unnamed watercourse and the associated water handling. Natural streambed material will be installed in the culvert extension. Drainage area of 114 acres. Construction start date in Spring of 2021 for 2 seasons.

**Project 102-368, (continued)**

**Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	323	595	918
Temporary	372	225	597
Total	695	820	1,515

**Agency Comments:**

- USACE asked if the culvert extension is still following the natural channel. The design engineer confirmed as such.
- CTDEEP LWRD asked what was the length of the extension and if the invert was being modified. The design engineers reported that the extension was approximately 20-25', compared to the length of existing culvert which is approximately 200'. The invert elevation is being modified so that the extension matches the slope of the existing culvert.
- CTDEEP LWRD asked if proposed culvert extension will allow for a full 12 inches of natural stream bed material. The design team clarified that the extension will match existing elevations of the culvert and the natural streambed. Natural streambed material will be used to restore any disturbed sections of the streambed.
- CTDEEP LWRD asked if the culvert passes the 50-year storm. DOT Hydraulics & Drainage confirmed as such.
- CTDEEP LWRD asked if NDDDB coordination has been completed. DOT OEP confirmed that an NDDDB Determination Letter was received (Box Turtle identified) and that the documentation will accompany the permit application.
- DEEP Fisheries stated there were no concerns and the only restriction is unconfined in-water work should be restricted to June 1 through September 30.
- The design engineers stated that the culvert work is proposed to be performed during the dry season and should take approximately 1 month. Pumping for the work was discussed and is allowed for the culvert work.

**Permitting Requirements:** Flood Management General Certification, USACE SV (GP 19), CTDEEP IWGP

**Action Items:** Finalize design and provide OEP with permit plans for DEEP Fisheries sign-off and submit permit plans to EPC for preliminary review. OEP to prepare permit applications and submit to respective agencies.

**Project 40-146, Replacement of Bridge No. 02510, Route 82 over Strongs Brook in East Haddam**

Bridge No. 02510 was built in 1924 and consists of a single span reinforced concrete slab with integral concrete abutments. ADT is 3100 vehicles. The bridge has a 12-foot open span, a 30 foot 6 inch out-to-out width, and a 28-degree skew. Both the superstructure and substructure are rated “Poor” (4) due to large areas of spalls and scaling, and the bridge’s downstream parapet lacks appropriate safety protection (e.g., metal beam rail or impact attenuation system) due to a driveway encroachment. The proposed replacement is a 16-foot wide by 6.5-foot high box culvert that relocates the crossing approximately 40’ west of its current location. Streamflow through the existing structure will be maintained during construction. Due to construction sequencing, streambed material from the existing channel will not be able to be reused in the new culvert. Construction start date in April of 2022 for 1 season.

**Project Impacts:**

Wetland & Watercourse Impacts (coincident Federal and state)

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	833	3620	4453
Temporary	0	0	0
Total	833	3620	4453

**Agency Comments:**

- CTDEEP LWRD asked about NDDDB coordination. The project area does not have any mapped species or habitats of concern. NDDDB areas are mapped within ¼-mile. NDDDB coordination would only be necessary if the project disturbed more than one acre and required registration under the current Construction Stormwater General Permit.
- CTDEEP Fisheries requested that a low-flow channel be constructed in the culvert. DEEP Fisheries requested that the reuse of existing stream channel material in the new culvert be reconsidered or that additional fine materials be added into the supplemental stream channel material in order to address site specific requirements.
- USACE staff asked if the structure passes the 50year storm. CTDOT Hydraulics & Drainage indicated the box culvert will pass the 50-year storms without under-clearance, which is not required for culvert design per the Drainage Manual.
- USACE staff asked why a larger structure or bridge was not proposed. A larger structure would require either a raised roadway, which would involve grading slopes that would further impinge into the nearby watercourse, or a wider span, which would locate the outlet further downstream from Fisheries’ recommended connection point to the existing channel. CTDEEP Fisheries requests to preserve the braided stream near the proposed outlet as much as possible and a larger bridge would further encroach on that location.
- USACE staff asked if the existing structure was historic. OEP reported the project will be screened for Section 106 compliance.

## Interagency Meeting Notes DRAFT

February 20, 2020

Room 2215

### **Project 40-146 (continued)**

- CTDEEP LWRD asked what will be the slope. The design engineers reported that the existing stream coming into the location is 3%. The proposed culvert will be nearly flat and match into the braided stream at the outlet.

**Permitting Requirements:** USACE PCN GP19, 401 WQC via CTDEEP Addendum, DEEP IWGP

**Action Items:** Finalize design and provide OEP with permit plans incorporating CTDEEP Fisheries comments and submit permit plans to EPC for preliminary review. OEP to prepare permit applications and submit to respective agencies.

### **Project 135-332, Replacement of Bridge No. 04067, Cedar Heights Road over the Rippowam River in Stamford**

Bridge No. 04067 is a single-span structure situated on Cedar Heights Road over Rippowam River in the City of Stamford. The bridge, constructed in 1933, consists of a reinforced concrete deck superstructure supported by stone masonry abutments and wingwalls. The bridge has a 24-foot long span, and a 34-foot 1-inch out-to-out width. ADT is 3229 vehicles. An existing cast-in-place concrete invert slab is present between the abutments on the channel bed for scour protection and extends approximately 14 feet downstream of the bridge. Bridge No. 04067 is considered structurally deficient. Roadway overtops during 10-year storm event. Drainage area of 29.2 sq. miles.

The proposed replacement structure consists of a 42.5-foot clear span and a minimum out-to-out width of 43.83 feet. Hydraulic opening increasing from 158 sf to 335 sf. The superstructure will be supported by reinforced concrete abutments on spread footings, founded on competent bedrock. Temporary bypass pipes will be utilized in two stages in order to remove the existing cast-in-place invert slab and existing abutments. A temporary cofferdam will be utilized in the third stage to construct the proposed abutments. Bank-full width is identified as 60 feet. The proposed structure allows for continuous flow of the 50-year storm. Activity will cause adverse effect to historic property.

Initial Fisheries comments were received on 8/13/2013, and Fisheries has been provided with the latest plan set. No NDDB concerns.

#### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	400	1,900	2,300
Temporary	600	2,050	2,650
Total	1,000	3,950	4,950

Floodway Impacts: 460 CY cut; 170 CY fill

#### **Agency Comments:**

- DEEP LWRD staff asked if the project would require a CLOMR or LOMR. DOT Hydraulic & Drainage indicated that the project does not increase water surface elevations and therefore does not trigger either from FEMA.



## Interagency Meeting Notes DRAFT

February 20, 2020

Room 2215

### **Project 135-332 (continued)**

- DOT Engineering stated that it was recently determined that the project will result in an adverse effect to a historic structure. An MOA has been executed for the project.
- DEEP Fisheries requested that a low flow channel be installed below the structure due to the water depths anticipated and concerns about fish passage during low flows. Unconfined instream work limited to June 1 through September 30.

**Permitting Requirements:** FMC-MOU, USACE PCN GP19, 401 WQC via DEEP Addendum, Local Inland Wetlands. Historic property being affected (USACE 404- Appendix B- 9. Historic Properties)

**Action Items:** Finalize design and provide OEP with permit plans incorporating DEEP Fisheries comments. Town/Consultant to prepare permit applications and submit to respective agencies. FM-MOU to be submitted to DOT for review and approval.

### **Project 131-206, Replacement of Bridge No. 04562, Spring Street over Quinnipiac River in Southington**

**Project Description:** Bridge No. 04562 is a single span structure located on Spring Street that travels over the Quinnipiac River in Southington. Bridge No. 04562 is considered structurally deficient. The bridge, built in 1960, consists of steel rolled beams with a reinforced concrete deck. The bridge has a clear span length and out-to-out width of 37 feet and 45.5 feet, respectively. ADT of 3982 vehicles. Drainage area of 13.6 sq. miles. No NDDB concerns.

The proposed replacement consists of galvanized steel beams and reinforced concrete superstructure on integral reinforced concrete abutments supported by steel piles. The structure will have a clear span length of 70 feet and an out-to-out width of 43.67 feet. The proposed project will remove the superstructure, cut and cap existing abutments, build new abutments behind existing, and extend the sewer/gas mains. There are no temporary water handling cofferdams required for this project. The roadway overtops at the 100 year storm. There will be minimal change to the profile of the existing roadway due to the Town's preference to maintain a gravity sewer at this location. One drainage outlet will be relocated its current position due to conflict with the proposed structure construction. The new drainage outlet will be north (upstream) of the existing bridge and will require a splash pad. Construction start date in Spring of 2021 for 1.5 seasons.

#### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	100	0	100
Temporary	370	2080	2450
Total	470	2080	2550

Floodway Impacts: 585 CY cut; 45 CY fill

## **Interagency Meeting Notes DRAFT**

**February 20, 2020**

**Room 2215**

### **Project 131-206 (continued)**

#### **Agency Comments:**

- USACE asked about the timing of the unconfined instream work. DEEP Fisheries indicated no in-water work during the period April 1 to June 30 and any “unconfined” in-water work is allowed July 1 to September 30. Fisheries comments received noted presence of a number of diadromous species.
- USACE requested plan view of utility work. The design engineer reported that utility relocations were to be done separately from this project by the utility company.
- USACE asked about the amount of in-water work below ordinary high water, and requested that impacts to federal wetlands and impacts to the watercourse be shown separate and distinctly on the project plans. The designer explained that the need to install debris shielding under the bridge and that impacts are a result of using ladders or scaffolding for the installation; temporary watercourse impacts were accounted for as such. Temporary impacts shown below ordinary high water at the location of the proposed drainage outlet were associated with proposed riprap within the state wetland limits. Drainage outlet construction will likely necessitate cofferdam installation within a federally regulated area and should be shown and accounted for as such. It was recommended that the design and permits account for the space the contractor will need to perform the outlet construction.
- DOT H&D requested confirmation that existing abutments that are to remain in place have been evaluated for scour concerns. The design engineer confirmed as such.

**Permitting Requirements:** FMC-MOU, USACE SV GP 19, Local Inland Wetlands

**Action Items:** Finalize design in consideration of agency comments on impact areas below bridge and around the outlet. Town/Consultant to prepare permit applications and submit to respective agencies. FM-MOU to be submitted to DOT for review and approval.

### **Project 10-89, Preservation of Bridge No. 05169, Wood Creek Road over Weekeepeemee River in Bethlehem and Bridge No. 05956, Magnolia Hill Road over East Spring Brook in Bethlehem**

The purpose of this project is to implement systematic preventative maintenance repairs as a way to extend the service life of the bridges. No NDDB concerns.

**Bridge No. 05169** is a single-span structure over Weekeepeemee River, situated on Wood Creek Road. Bridge No. 05169, built in 1956, consists of a steel multi-girder superstructure with a reinforced concrete deck supported by reinforced concrete abutments. The bridge has a clear span length and out-to-out width of 33 feet and 25.6 feet, respectively. ADT is approximately 365 vehicles per day. The proposed preservation work is to clean and paint the existing beams and fixed bearings, and replace the existing expansion bearings with elastomeric bearing pads. New bridge rail and guide rail will be installed along with new membrane waterproofing and bituminous concrete wearing surface. The existing concrete deck and substructure will be patched as necessary. Containment measures to be used for lead paint. Drainage area of 3.3 sq. miles. (Separate drainage project being done by the Town. Both projects will be constructed concurrently.)

## Interagency Meeting Notes DRAFT

February 20, 2020

Room 2215

### Project 10-89 (continued)

**Bridge No. 05956** is a single-span structure over East Spring Brook, situated on Magnolia Hill. Bridge No. 05956, built in 1955, consists of a cast-in-place slab supported by reinforced concrete abutments. The bridge has a clear span length and out-to-out width of 20 feet and 25 feet, respectively. ADT is approximately 238 vehicles per day. The proposed scope of work will consist of new bridge rail and guide rail along with new membrane waterproofing and bituminous concrete wearing surface. The existing concrete deck and substructure will be patched as necessary. Drainage area of 2.18 sq. miles.

#### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
<b>Br. 05169</b>			
Permanent	0	0	0
Temporary	0	366	366
<b>Br. 05956</b>			
Permanent	0	0	0
Temporary	0	180	180

**Agency Comments:** USACE and DEEP discussed eligibility for SV for both sites and concurred that both project sites are eligible for SV authorization under GP2 (Maintenance) given the scope of work for this project and since not touching the water or changing the structures.

#### **Permitting Requirements:**

- Bridge 05169: Flood Management General Certification, USACE SV GP2, Local Inland Wetlands
- Bridge 05956: USACE SV GP2, Local Inland Wetlands

**Action Items:** Finalize design. Town/Consultant to prepare permit applications and submit to respective agencies.



Connecticut Department of  
Energy & Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127  
www.ct.gov/deep

KIMBERLY C. LESAY  
STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION  
2800 BERLIN TPKE  
PO BOX 317546  
NEWINGTON, CT 06111-4113

6/11/2020

Dear Applicant:

This letter is to confirm the receipt of the following application package:

Applicant/Registrant: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION  
Permit Type: Construction Activity 8, Activities Authorized Under a Corps General Permit-GP  
DOT PROJECT #0102-0368, MERRITT PARKWAY (ROUTE 15) SAFETY  
IMPROVEMENTS, RESURFACING, ENHANCEMENTS, BRIDGE  
IMPROVEMENTS & SOUTHBOUND EXIT 40B DECELERATION LANE  
EXTENSION, NORWALK/WESTPORT

Your application has been assigned the following number: 202006936  
Please include this number on all correspondence regarding this application.

As of today, the following materials have been received:

ITEM	REQUIRED FEE	FEE RECEIVED	RECEIVED ON
Application Package			5/28/2020
Application Fee	0.00		

To complete application submission:

- Send an empty/blank email to DEEP.LWRDRegulatorySubmittals@ct.gov
- An automated email response will contain instructions for uploading a PDF of the Transmittal Form and applicable Program Forms, management plans, or additional supporting documents of your application to the LWRD File Transfer Protocol (FTP) website.
- Follow directions contained in the email for uploading the Transmittal and Application Forms.

The fee for this application has been discounted 100%.

If there are any questions regarding this notice, please feel free to contact the Central Permit Processing Unit at (860) 424-4004 or DEEP.CentralPermits@ct.gov

If you have specific technical questions regarding your application, please contact the Land and Water Resources Division at 860-424-3019

Please remember to check your security settings to be sure you can receive e-mails from (ct.gov) addresses. Also, please notify the department if your e-mail address changes.

Thank you.

Sincerely,

Central Permit Processing Unit

Your Files

[Upload](#)
[Actions](#)

[View](#)

Name	Last modified	Size
<a href="#">202006642 - Application Form &amp; Attachments.pdf</a>	6/4/2020, 10:08:00 AM	22.74 MB
<a href="#">202006642 - Transmittal Form.pdf</a>	6/4/2020, 10:07:00 AM	444.10 KB
<a href="#">202006644 - Application Form &amp; Attachments.pdf</a>	6/4/2020, 10:10:00 AM	27.88 MB
<a href="#">202006644 - Transmittal Form.pdf</a>	6/4/2020, 10:09:00 AM	447.46 KB
<a href="#">202006777 - Application Form &amp; Attachments.pdf</a>	6/8/2020, 2:11:00 PM	8.50 MB
<a href="#">202006777 - Transmittal Form.pdf</a>	6/8/2020, 2:11:00 PM	570.65 KB
<a href="#">202006936 - Application Form &amp; Attachments.pdf</a>	6/11/2020, 8:45:00 AM	13.88 MB
<a href="#">202006936 - Transmittal Form.pdf</a>	6/11/2020, 8:45:00 AM	711.92 KB
<a href="#">202006997 Application and Attachments.PDF</a>	6/10/2020, 11:35:00 AM	6.14 MB
<a href="#">202006997 Transmittal.PDF</a>	6/10/2020, 11:34:00 AM	383.04 KB
<a href="#">20206563-Attachment-Data Package-v1.pdf</a>	6/4/2020, 11:07:00 AM	8.23 MB

Uploads monitor

**INTERDEPARTMENTAL  
MESSAGE**

**STATE OF CONNECTICUT**

<b>To</b>	NAME, TITLE	DATE
	Central Permit Processing Unit, 1 <sup>st</sup> Floor	
<b>From</b>	AGENCY, ADDRESS	
	Department of Environmental Protection, 79 Elm Street, Hartford	
	NAME, TITLE	TELEPHONE
	Ms. Kimberly C. Lesay, Transportation Assistant Planning Director	(860) 594-2931
	AGENCY, ADDRESS	
	Department of Transportation, 2800 Berlin Turnpike, Newington	

Subject: State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
City of Norwalk & Town of Westport  
Form O: General Permit for Water Resource Construction Activities (Activities 8 & 9)

Attached is an original CT DEEP Request for Authorization Form for the General Permit for Water  
Resource Construction Activities (Activity 8) for the above referenced project.

Any questions pertaining to this application may be directed to Mr. Jason M. Coite, Transportation  
Supervising Engineer of my staff, at (860) 594-3448.

Attachments

The logo is a circular emblem. The top half of the circle contains a stylized sun with rays. Below the sun are three wavy lines representing water or land. The word "CONNECTICUT" is written in a curve along the top inner edge of the circle. The word "ENERGY" is written vertically along the left inner edge. The word "ENVIRONMENT" is written vertically along the right inner edge.



<u>General Permit Registration for Coastal Maintenance</u>			
<input type="checkbox"/> Marina and Mooring Field Reconfiguration	E	\$700	[#992]
<input type="checkbox"/> Remedial Activities Required by Order	F	\$700	[#427]
<input type="checkbox"/> Residential Modification to FEMA Standards	G	\$100	[#423]
<input type="checkbox"/> Reconstruction of Permitted Structures	H	\$300	[#1741]
<u>General Permit Registration for Minor Coastal Structures</u>			
<input type="checkbox"/> 4/40 Docks/Access Stairs	I	\$700	[#426]
<input type="checkbox"/> Non-Harbor Moorings	J	\$250	[#422]
<u>General Permit Registration for Dolphin Cove</u>			
<input type="checkbox"/> Structures, Fill, Obstructions, or Encroachments in Dolphin Cove Lagoon, Stamford	K	\$100	[#420]

## Part I: License Type and Fee Information (continued)

Type of License	Program Form	Fee	DEEP USE ONLY
<b>For Federal Agency Activities Only:</b> <input type="checkbox"/> Section 401 Water Quality Certificate (Tidal)	C	None	[#1186]
<b>Licenses for Activities in Non-Tidal Waters</b>			
<input type="checkbox"/> Section 401 Water Quality Certificate (Individual) <sup>3</sup> <input type="checkbox"/> Pre-Construction Notification, USACE General Permits for CT <sup>3</sup> <input type="checkbox"/> Inland Wetlands and Watercourses <sup>4</sup> <input type="checkbox"/> Inland Wetlands and Watercourses <sup>4</sup> and WQC <sup>3</sup>	L L L L	None None None None	[#1195] [#1188] [#365] [#2225]
<sup>3</sup> For activities requiring a Sec.404 Permit from USACE. <sup>4</sup> For State Agency Activities OR Activities Conducted on State Owned/Controlled Lands.			
<b>For State Agency Activity Conducted on State Owned/Controlled Lands Only:</b> <u>General Permit Registration for Water Resources Construction Activities</u>			
<input type="checkbox"/> Activities 1-4: Maintenance Plans	M	\$2,500	[#2243]
<input type="checkbox"/> Activities 5-7: Infrastructure and Public Works Projects	N	\$2,500	[#2244]
<input checked="" type="checkbox"/> Activity 8: Activities Authorized Under a Corps General Permit (Must be submitted after receiving PCN approvals and Flood Management, if applicable.)	O	\$1,250	[#2245]
<input type="checkbox"/> Activity 9: Conservation Activities	O	\$1,250	[#2246]
<b>Additional Licenses for Activities</b>			
<b>These licenses may be combined with Tidal or Non-Tidal Waters licenses.</b>			
<b>Water Diversion – Non-consumptive</b> <input type="checkbox"/> Watershed < 0.5 sq. mi. <input type="checkbox"/> Watershed ≥ 0.5 sq. mi and < 2.0 sq. mi. <input type="checkbox"/> Watershed ≥ 2.0 sq. mi.	L L L	\$2,050 \$4,000 \$6,250	[#457] [#456] [#455]
<b>For State Agency Activity/Activities Receiving Funding Through a State Agency:</b>			
<input type="checkbox"/> Flood Management Certification	P	None	[#1185]
<input type="checkbox"/> Flood Management Certification with Exemption Request	P	None	[#1185]
Fee from Attachment A, if applicable		State Waiver	
<b>Total</b>		\$0	

\*For processing purposes, the terms Application and Applicant are synonymous with the terms Registration and Registrant.

In addition to applicable boxes above, check here if your application is:

- ☐ eligible for a municipal 50% discount;
- ☐ for work in tidal waters and being submitted pursuant to CGS section 22a-361(a)(2)(d) to address a violation; or
- ☒ receiving state funding including federal funding administered by the state (to help determine need for Flood Management Certification).

## Part II: Project and Site Information

**1a. Project:** Provide a brief description of project/activity/work: CT DOT Project No. 0102-0368 involves Merritt Parkway (Route 15) safety improvements, resurfacing, enhancements and bridge improvements from Route 15 over Main Avenue in Norwalk to Route 15 over Newtown Turnpike in Westport. Additionally, the deceleration lane for the Route 15 Southbound Exit 40B will be extended approximately 1,010 feet. Extension of the deceleration lane requires extension of an existing 4' x4' box culvert carrying an unnamed brook under Route 15.

### 1b. Site Name and Location

Name of Site: DOT Project No. 0102-0368

Address of Site: Route 15 City/Town: Norwalk/Westport State: CT Zip Code: 06851/06880

Parcel Location/Tax Assessor's Reference: Map N/A Block N/A Lot N/A

GPS Coordinates/Latitude and Longitude: Provide the exact location of proposed activity, in degrees/minutes/seconds or in decimal degrees: Latitude: 41.149866 Longitude: -73.409774

Parcel/Easement size: If the project is located on a parcel, indicate parcel acreage: N/A acres

If the project is located on a utility/transportation right-of-way or easement, indicate dimensions or acres: See Permit Plans

## Part III: Applicant Information

- If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, they must be registered with the Secretary of State. If applicable, the applicant's name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of State's database (CONCORD) at [portal.ct.gov/SOTS](http://portal.ct.gov/SOTS).
- If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).
- Once an authorization has been received, if there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the [Request to Change Company/Individual Information](#) to the address indicated on the form.

### 1. Applicant/Registrant\* Information

Name: Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike

City/Town: Newington State: CT Zip Code: 06111

Business Phone: \_\_\_\_\_ Ext.: \_\_\_\_\_

Contact Person: Kimberly C. Lesay Phone: 860-594-2931 Ext: \_\_\_\_\_

E-mail Address†: Kimberly.Lesay@ct.gov

†Email is Required. By providing this e-mail address you are agreeing to receive official correspondence from DEEP, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify DEEP if your e-mail address changes.

☐ If co-applicant(s), check this box and attach co-applicant information as Attachment B following this form.

#### a) Applicant Type (check one):

☐ individual ☐ federal agency ☒ state agency ☐ municipality ☐ tribal

☐ business entity (if a business entity, complete i through iii below):

i) business type: ☐ corporation ☐ limited liability company ☐ limited partnership

☐ limited liability partnership ☐ statutory trust ☐ Other: \_\_\_\_\_

ii) provide Secretary of the State business ID #: \_\_\_\_\_

This information can be accessed at database (CONCORD): [portal.ct.gov/SOTS](http://portal.ct.gov/SOTS)

iii) ☐ check here if your business is **NOT** registered with the Secretary of State's Office.

\*For processing purposes, the terms Application and Applicant are synonymous with the terms Registration and Registrant.

### Part III: Applicant Information (continued)

b) Applicant's interest in property at which the proposed activity is located:

- ☒ site owner      ☐ option holder      ☐ lessee      ☐ facility owner  
☐ easement holder      ☐ operator      ☐ other (specify): \_\_\_\_\_

**2. List billing contact, if different than the applicant:**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Ext.: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail: \_\_\_\_\_

**3. Primary contact for departmental correspondence and inquiries if different than applicant:**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Ext.: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail: \_\_\_\_\_

**4. Site/Property Owner\*, if different than applicant:**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Ext.: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail: \_\_\_\_\_

**\*If the applicant is not the owner, submit written permission from the owner as Attachment C**

**5. Facility Owner, if different than applicant:**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Ext.: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail: \_\_\_\_\_

**6. Facility Operator, if different than applicant:**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Ext.: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail: \_\_\_\_\_

### Part III: Applicant Information (continued)

**7. Attorney or other representative, if applicable.**

Firm Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Ext.: \_\_\_\_\_

Attorney: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail: \_\_\_\_\_

**8. Engineer(s), surveyor(s) and/or other consultant(s) employed or retained to assist in preparing the application and designing or constructing the activity.**

Name: Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike

City/Town: Newington

State: CT Zip Code: 06111

Business Phone: 860-594-2597

Ext.: \_\_\_\_\_

Contact Person: Nicholas Ivanoff

Title: Transportation Engineer III

E-mail: Nicholas.Ivanoff@ct.gov

Service Provided: Project Design

### Part IV: Pre-Application Coordination

**If pre-application coordination occurred, provide DEEP LWRD staff contact information:**

Staff Name: Interagency Coordination Meeting

Date: 02/20/2020

### Part V: Supporting Documents

As applicable, check the box by the attachments listed to indicate that they have been submitted. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on this application form. Attach the materials below following this transmittal form.

- ☐ Attachment A Structures, Dredging and Fill fee calculation worksheet (if applicable)
- ☐ Attachment B Co-applicant information sheet (if applicable)
- ☐ Attachment C Written permission from land owner (if applicant is not the owner)
- ☐ Attachment D Additional signature sheet (if applicable)

## Part VI: Applicant Certification

The applicant(s) *and* any individual(s) responsible for actually preparing the application must sign this section. An application will be considered insufficient unless *all* required signatures are provided.

"I have personally examined and am familiar with the information submitted in the LWRD application and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that the LWRD application is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

I certify that I have complied with all notice requirements, if applicable, as listed in Section 22a-6g of the General Statutes."



Digitally signed by Garrett Eucalitto  
Date: 2020.05.27 23:05:06 -04'00'

Signature of Applicant

Date

**Garrett T. Eucalitto**

Name of Applicant (print or type)

**Deputy Commissioner**

Title (if applicable)

**Michael J. Salter**

Digitally signed by Michael J. Salter  
DN: C=US, E=Michael.Salter@ct.gov, O="CTDOT, Office of  
Environmental Planning", OU=Environmental Permitting,  
CN=Michael J. Salter  
Date: 2020.05.27 08:44:15-04'00'

Signature of Preparer (if different than above)

Date

**Michael J. Salter**

Name of Preparer (print or type)

**Transportation Planner**

Title (if applicable)

☐ Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet as Attachment D. You must include signatures of any person preparing any report or parts thereof required in this application (i.e., professional engineers, surveyors, soil scientists, consultants, etc.).

## Part VII: Application Submission

Instructions for submitting an application to DEEP LWRD:

1. Please submit a hardcopy of **only** this completed License Application Transmittal Form and fee, to:

**CENTRAL PERMIT PROCESSING UNIT  
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127**

Applications will not be processed without the fee. Fee shall be non-refundable and shall be paid by check or money order to the Connecticut Department of Energy & Environmental Protection.

2. Upon receipt of the Transmittal Form and fee, the Central Permit Processing Unit (CPPU) will e-mail a confirmation receipt letter to you containing the DEEP assigned application number.
3. Upon receipt of the email from CPPU, electronically submit the full application package with the remaining required forms:
  - a. Send an empty/blank email to [DEEP.LWRDRegulatorySubmittals@ct.gov](mailto:DEEP.LWRDRegulatorySubmittals@ct.gov)
  - b. An automated email response will contain instructions for uploading this Transmittal Form and applicable Program Forms, management plans, or additional supporting documents of your application to the LWRD File Transfer Protocol (FTP) website.
  - c. Follow directions contained in the email for uploading the application sections.

**If you are not capable of submitting the application electronically or if you have other questions or concerns regarding application submittals, please contact LWRD staff at 860-424-3019.**



# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931



**TO:** Norwalk Conservation Commission  
125 East Avenue  
Norwalk, CT 06851

**FROM:** Kimberly C. Lesay Kimberly Lesay Digitally signed by Kimberly Lesay  
Date: 2020.05.27 09:40:46 -04'00'  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

**SUBJECT:** Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

**PROJECT:** State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements,  
Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Town of Westport & City of Norwalk

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Jason M. Coite at 860-594-3448.





# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931



**TO:** Norwalk Inland Wetlands Agency  
125 East Avenue  
Norwalk, CT 06851

**FROM:** Kimberly C. Lesay Digitally signed by Kimberly Lesay  
Date: 2020.05.27 09:41:07 -04'00'  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

**SUBJECT:** Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

**PROJECT:** State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements,  
Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Town of Westport & City of Norwalk

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Jason M. Coite at 860-594-3448.



# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931



**TO:** Norwalk Planning Commission  
125 East Avenue  
Norwalk, CT 06851

**FROM:** Kimberly C. Lesay Kimberly Lesay Digitally signed by Kimberly Lesay  
Date: 2020.05.27 09:41:29 -04'00'  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

**SUBJECT:** Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

**PROJECT:** State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements,  
Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Town of Westport & City of Norwalk

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Jason M. Coite at 860-594-3448.



# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931



**TO:** Norwalk Zoning Commission  
125 East Avenue  
Norwalk, CT 06851

**FROM:** Kimberly C. Lesay Kimberly Lesay Digitally signed by Kimberly Lesay  
Date: 2020.05.27 09:41:51 -0400  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

**SUBJECT:** Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

**PROJECT:** State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements,  
Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Town of Westport & City of Norwalk

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Jason M. Coite at 860-594-3448.



# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931



**TO:** Westport Planning and Zoning Commission  
100 Myrtle Avenue  
Westport, CT 06880

**FROM:** Kimberly C. Lesay Kimberly Lesay Digitally signed by Kimberly Lesay  
Date: 2020.05.27 09:42:12 -04'00'  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

**SUBJECT:** Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

**PROJECT:** State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements,  
Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Town of Westport & City of Norwalk

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Jason M. Coite at 860-594-3448.



# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931



**TO:** Westport Conservation Commission  
100 Myrtle Avenue  
Westport, CT 06880

**FROM:** Kimberly C. Lesay Digitally signed by Kimberly Lesay  
Date: 2020.05.27 09:42:33 -04'00'  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

**SUBJECT:** Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

**PROJECT:** State Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements,  
Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Town of Westport & City of Norwalk

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Jason M. Coite at 860-594-3448.



Connecticut Department of  
Energy & Environmental Protection  
Bureau of Water Protection & Land Reuse  
Land & Water Resources Division

## LWRD License Application Form O

### General Permit Request for Authorization, Water Resources Construction Activities (Activities 8 & 9)

- Activities Authorized Under a USACE General Permit
- Conservation Activities

All sections of the LWRD License Application, when applicable, must be posted to the DEEP LWRD FTP site as instructed on Part VII of the LWRD Transmittal Form.

Application Number (as assigned in CPPU e-mail): 202006936

Applicant Name (same name used on Part III of the LWRD Transmittal Form): Connecticut Department of Transportation

### Supporting Documents

Check the box by the attachments listed to indicate that they have been submitted. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment 31, etc.) and be sure to include the same applicant name used above. NOTE: Attachment numbering is NOT consecutive as the attachments relate to multiple LWRD program applications.

- |                                     |               |   |
|-------------------------------------|---------------|---|
| <input type="checkbox"/>            | Attachment 29 | Attach a copy of USACE PCN authorization, if applicable. USACE PCN # _____  |
| <input checked="" type="checkbox"/> | Attachment 31 | Attach a copy of either the DEEP Section 401 Pre-Construction Notification (PCN) License or the USACE Self-Verification (SV) submittal, including form and plans. DEEP PCN # <u>N/A</u>       |
| <input checked="" type="checkbox"/> | Attachment 32 | Flood Management Certification (FMC) must be issued prior to submittal of this form, if required. Attach a copy of the FMC License. FMC # <u>N/A - Flood Management General Certification</u> |

General Permit Request for Authorization, Water Resource Construction Activities (Activities 8 & 9)

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 31: USACE Self-Verification (SV) Package, GP's 18 & 19**



**STATE OF CONNECTICUT**  
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931

Regulatory Division  
U.S. Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

Subject: **State Project No. 0102-0368**  
Route 15 Safety Improvements, Resurfacing, Enhancements, and Bridge  
Improvements  
City of Norwalk & Town of Westport

Whom it may concern:

Enclosed please find one copy of the USACE Appendix E: Self-Verification Notification Form for GP's 18 & 19 with attachments for your files. A copy has also been submitted to the Connecticut Department of Energy and Environmental Protection. The project has been submitted to the United States Fish & Wildlife Service by DOT's Office of Environmental Planning under the Final 4(d) Rule using the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form on behalf of FHWA. Any questions pertaining to this application may be directed to Mr. Jason M. Coite, Transportation Supervising Engineer of my staff, at 860-594-3448.

Very truly yours,

**Kimberly Lesay** Digitally signed by Kimberly  
Lesay  
Date: 2020.05.27 09:43:32 -04'00'

Kimberly C Lesay  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

Attachments





**US Army Corps  
of Engineers®**  
New England District

## Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B  
U.S. Army Corps of Engineers  
696 Virginia Road  
Concord, MA 01742-2751  
or [cenae-r@usace.army.mil](mailto:cenae-r@usace.army.mil)

and

CT DEEP  
Inland Water Resources Division  
79 Elm Street  
Hartford, CT 06106-5127

\*\*\*\*\*

State or local Permit Number: \_\_\_\_\_

Date of State or local Permit: \_\_\_\_\_

State/local Project Manager: \_\_\_\_\_

Permittee: Connecticut Department of Transportation

Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111

Phone(s) and Email: Kimberly.Lesay@ct.gov, 860-594-2931

Contractor: TBD by low bid process

Address, City, State & Zip: \_\_\_\_\_

Phone(s) and Email: \_\_\_\_\_

Consultant/Engineer/Designer: Connecticut Department of Transportation

Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111

Phone(s) and Email: Nicholas.Ivanoff@ct.gov

Wetland/Soil Scientist Consultant: CT DOT Office of Environmental Planning

Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111

Phone(s) and Email: Michael.Salter@ct.gov, 860-594-2933

Project Location (provide detailed description & locus map): Route 15 from Route 15 over Main Avenue in Norwalk, CT to Route 15 over Newtown Turnpike in Westport, CT

Address, City, State & Zip: Norwalk, CT 06851/ Westport, CT 06880

Latitude/Longitude Coordinates: 41.149866, -73.409774

Waterway Name: Unnamed watercourse and wetlands

Project Purpose (include all aspects of the project including those not within Corps jurisdiction):  
This project purpose is a corridor improvement effort to provide safety improvements and

enhancements to the Merritt Parkway, while maintaining its unique character and aesthetics

Work Description: \_\_\_\_\_

Please see attached Project Description

**Work will be done under the following GP(s) (check all that have associated impacts):**

**\_\_\_\_\_ GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 5 - Boat ramps/marine railways**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 6 - Utility line activities (include calculations for each single & complete crossing  
– attach additional sheet if necessary)**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 9 - Shoreline and bank stabilization projects**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 12 - Oil Spill and Hazardous material cleanup**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 13 - Cleanup of hazardous and toxic waste**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 14 - Scientific measurements devices**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 15 - Survey activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

**\_\_\_\_\_ GP. 17 - New/expanded developments & recreational facilities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total wetland impacts:	temporary	<u>157</u>	SF	permanent	<u>282</u>	SF
Area of total waterway impacts:	temporary	<u>0</u>	SF	permanent	<u>0</u>	SF

Area of total wetland impacts:	temporary	<u>0</u>	SF	permanent	<u>0</u>	SF
Area of total waterway impacts:	temporary	<u>225</u>	SF	permanent	<u>595</u>	SF

Area of total wetland impacts: temporary \_\_\_\_\_SF permanent \_\_\_\_\_SF  
Area of total waterway impacts: temporary \_\_\_\_\_SF permanent \_\_\_\_\_SF

(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: \_\_\_\_\_

**Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.**

Date \_\_\_\_\_

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation

Project No.0102-0368

Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

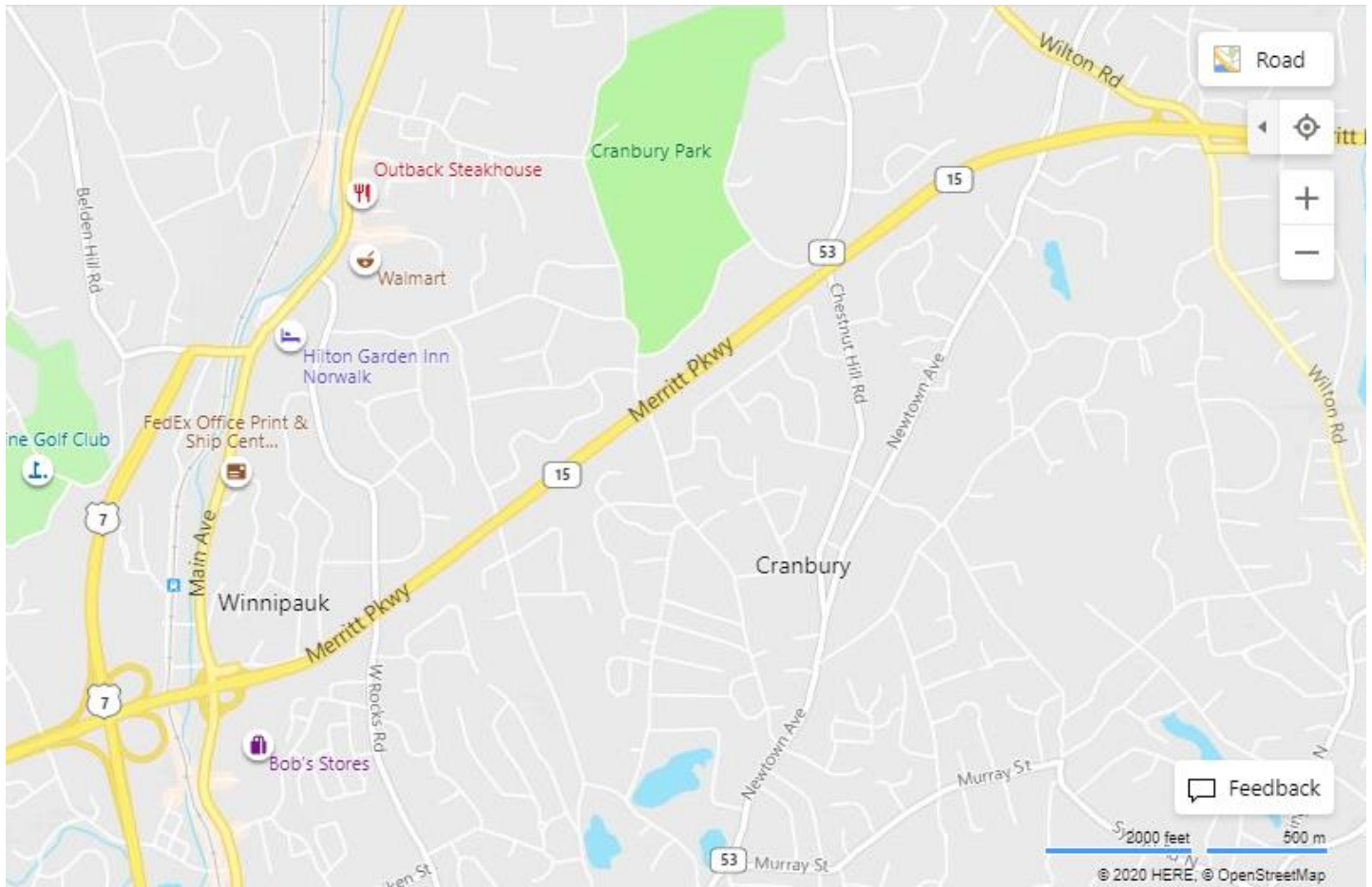
---

#### **Attachment 1: Locus Map**

USACE Self-Verification From, GP 18 & GP 19  
Applicant: State of Connecticut, Department of Transportation  
Project No.0102-0368

Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

## Attachment 1: Locus Map



USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 2: Project Description**

## **Attachment 2: Project Description**

CT DOT Project No. 0102-0368 involves Merritt Parkway (Route 15) safety improvements, resurfacing, enhancements and bridge improvements from Route 15 over Main Avenue in Norwalk to Route 15 over Newtown Turnpike in Westport. Additionally, the deceleration lane for the Route 15 Southbound Exit 40B will be extended approximately 1,010 feet. Extension of the deceleration lane requires extension of an existing 4' x 4' box culvert carrying an unnamed brook under Route 15.

This project has been initiated by the Connecticut Department of Transportation (Department) as part of a corridor improvement effort to provide safety improvements and enhancements to the Merritt Parkway, while maintaining its unique character and aesthetics. This is the 8th and final project in a series of 8 corridor improvement projects on the Merritt Parkway. With completion of this project 100% of the Parkway will be upgraded.

This project involves resurfacing Route 15 in both directions as well as providing various safety improvements and aesthetic enhancements. All work would conform to the "Merritt Parkway Guidelines for General Maintenance and Transportation Improvements" recommendations, prepared by the Merritt Parkway Working Group in June 1994. In addition, the project will rehabilitate and restore historic bridge structures in accordance with the "Merritt Parkway Bridge Restoration Guide" dated May 2002.

Roadway improvements include the following: widening the existing shoulders to 8-feet (4-foot paved shoulder and 4-foot reinforced grass shoulder); replacing the existing variety of guiderail with Merritt Parkway Guide Rail (steel backed timber railing); correcting existing cross slopes of the roadway to meet standards; removing rock ledges and other fixed objects within the recommended clear zone or protecting it with Merritt Parkway Guide Rail or Merritt Parkway Concrete Barrier; installing a slip lined concrete curb and gutter system along the median for drainage and delineation purposes; limited full-depth pavement replacement under bridges and patching of other deteriorated areas; resurfacing of the roadway; installing new drainage; installing Merritt Parkway Median Barrier in areas where the width of the roadway is limited. Existing drainage outlets will be rehabilitated, including removal of accumulated sediments, repair of existing headwalls and installation of riprap aprons.

The bridges within the project limits will require minor cosmetic work (various parapet work, graffiti removal, surface and crack repairs to concrete, fencing, overlay, etc). Some bridges may require major work including removing the material on top of the bridge to expose the concrete arch or frame; repairing any deteriorated sections; applying a waterproofing membrane; re-establishing the roadway to its original profile; performing any necessary underside repairs; and finally cleaning the bridge.

Additionally the existing Route 15 Southbound Exit 40B deceleration lane will be extended from 260 feet to 1,270 feet. In order to extend the deceleration lane, an existing 4-foot by 4-foot box culvert carrying an unnamed watercourse below Route 15 will need to be extended. The box culvert will be extended at the inlet approximately 18 feet to the north in order to accommodate the proposed slopes for the deceleration lane.

Impacts to the wetlands will be minimized through adherence to the Form 817 Section 1.10 Best Management Practices (BMP's) and the 2004 Stormwater Quality Manual. Sedimentation and Erosion Control Systems will be implemented throughout the project area and installed in accordance with the 2002 Guidelines for Soil Erosion and Sedimentation Control.

The project will result in 282 sq. ft. of permanent wetland impacts and 157 sq. ft. of temporary wetland impacts. Proposed wetland impacts are a result of rehabilitation of five stormwater outlets that directly discharge to wetlands. Rehabilitation of the existing stormwater outlets will consist of removal of accumulated sediments, installation of riprap aprons and construction access. The project will also result in 595 sq. ft. of permanent and 225 sq. ft. of temporary watercourse impacts (below OHW). The proposed watercourse impacts are associated with extension of the existing culvert, which is required for construction of 1,010 feet of additional deceleration lane for Exit 40B. The impacts are a result of

installation of the proposed box culvert extension and wingwalls, embankment grading, placement of natural streambed material to restore the stream channel, and water handling for construction of the culvert extension in the dry.

All disturbed wetland areas will be seeded with a wetland grass establishment seed mix and slopes will be reseeded with a conservation seeding for slopes. This project also involves the rehabilitation of the existing landscaping throughout the project limits by removing invasive species, preserving existing plantings, and adding additional plantings in accordance with the "Merritt Parkway Landscape Master Plan" dated October 1994.

The project is scheduled to start construction in spring 2021 and is scheduled to take two construction seasons.

The proposed project has received a Flood Management General Certification from DOT Hydraulics & Drainage. The project requires a Self-Verification Notification Form under GP 18 & GP 19 from the US Army Corps of Engineers and a General Permit for Water Resource Construction Activities (Form O) from the Connecticut Department of Energy and Environmental Protection.



USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

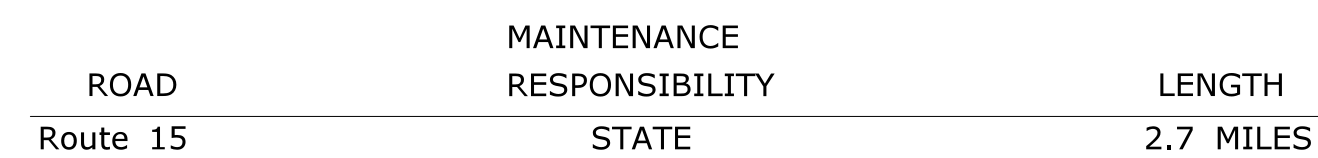
---

**Attachment 3: Project Plans**

- |          |  |
|----------|--|
| • PMT-01 | Title Sheet                            |
| • PMT-02 | Permit Plan Index Sheet                |
| • PMT-03 | Permit Plan Index Sheet                |
| • PMT-04 | Drainage Outfall Rehab Details         |
| • PMT-05 | Highway Plan                           |
| • PMT-06 | Highway Plan                           |
| • PMT-07 | Highway Plan                           |
| • PMT-08 | Wetland/Watercourse Impact Plan        |
| • PMT-09 | Wetland/Watercourse Impact Plan        |
| • PMT-10 | Wetland/Watercourse Impact Plan        |
| • PMT-11 | Area 1 Staging and Water Handling Plan |
| • PMT-12 | Area 1 Elevations and Section          |



**CITY AND TOWN of  
NORWALK AND WESTPORT**



**PROJECT LOCATION**

**TOWN OF WESTPORT**

**CITY OF NORWALK**

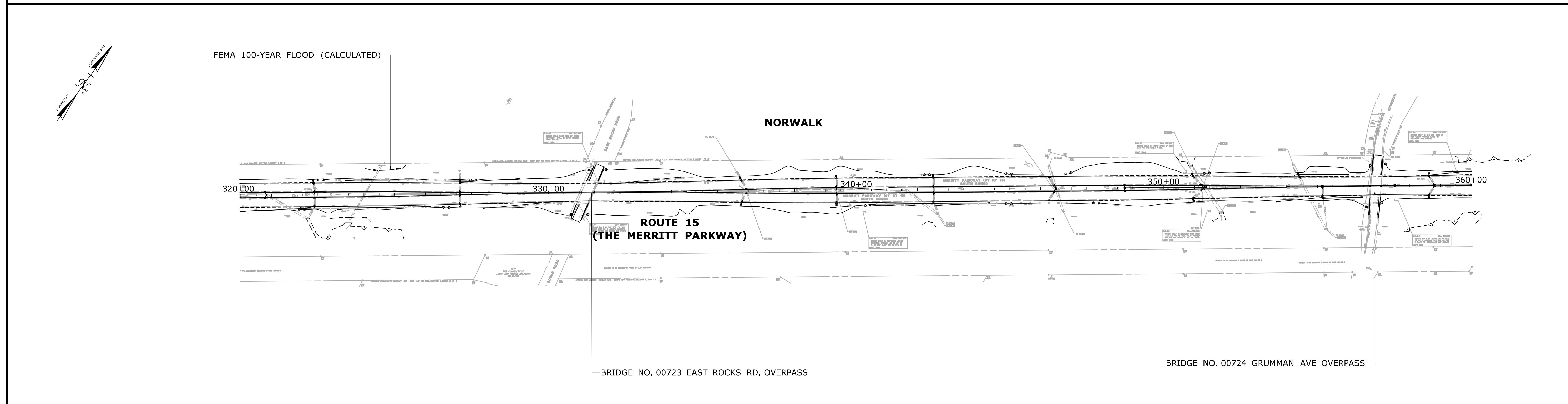
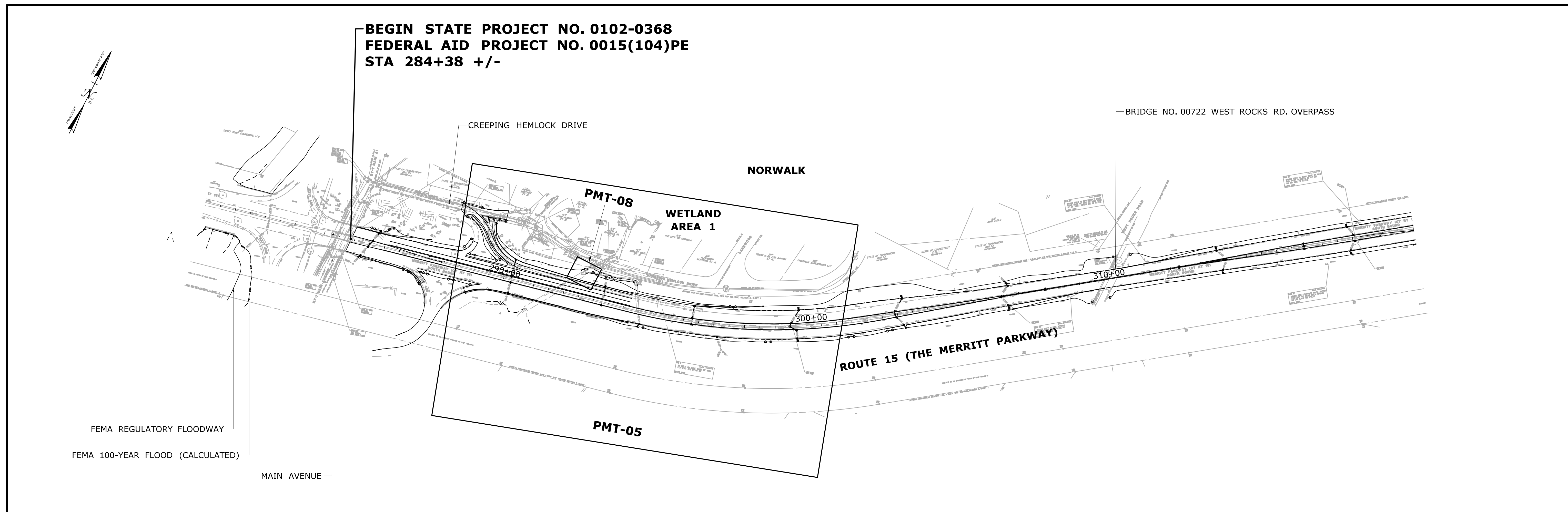
15

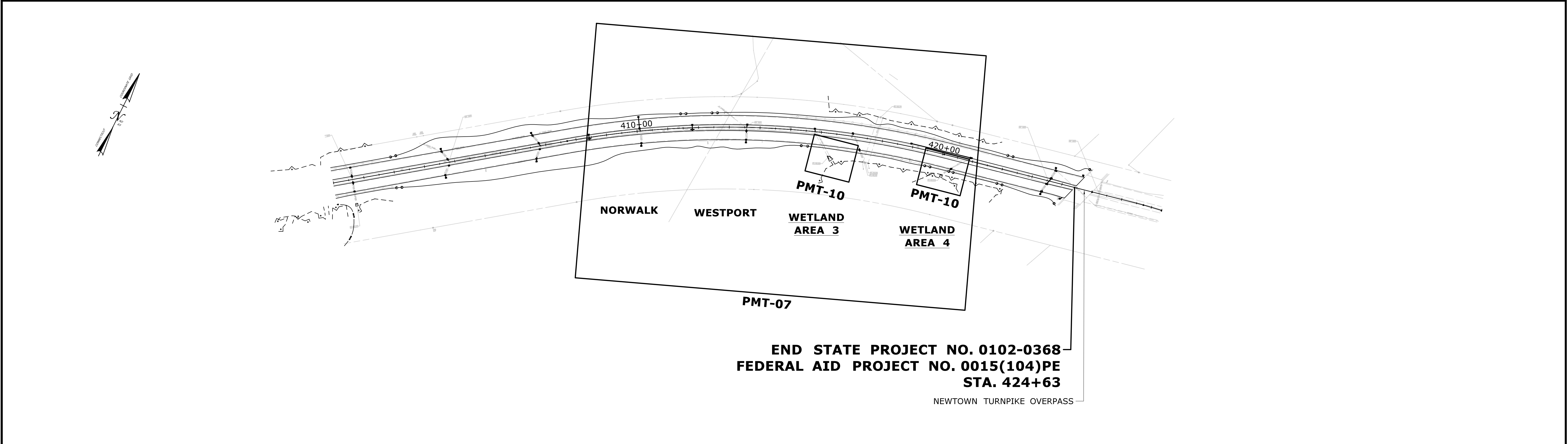
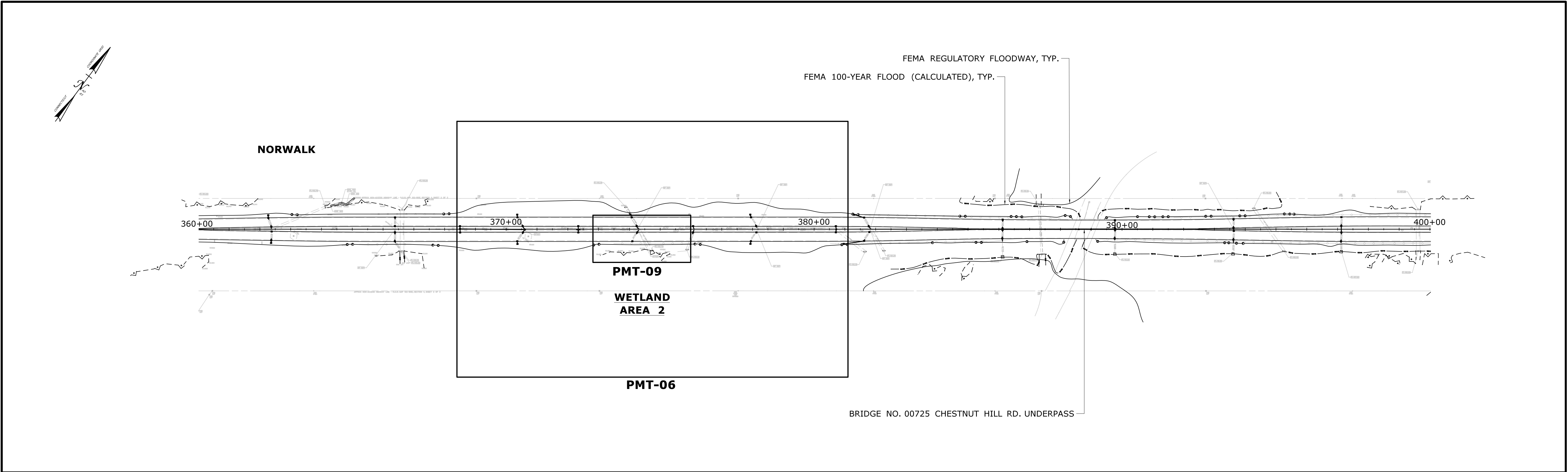
7

95


LONG ISLAND SOUND

DRAWING NO.  
**PMT-01**  
SHEET NO.

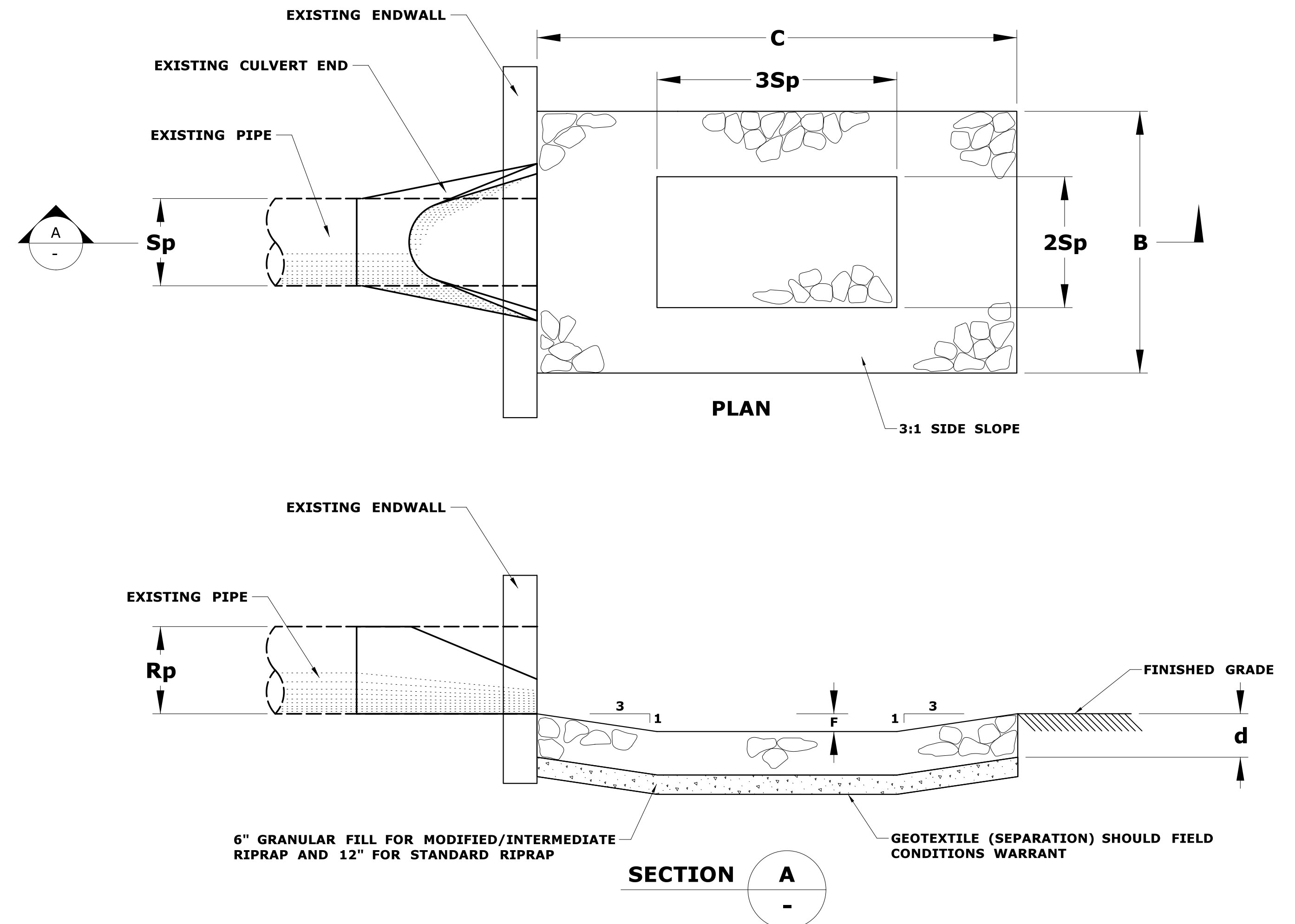
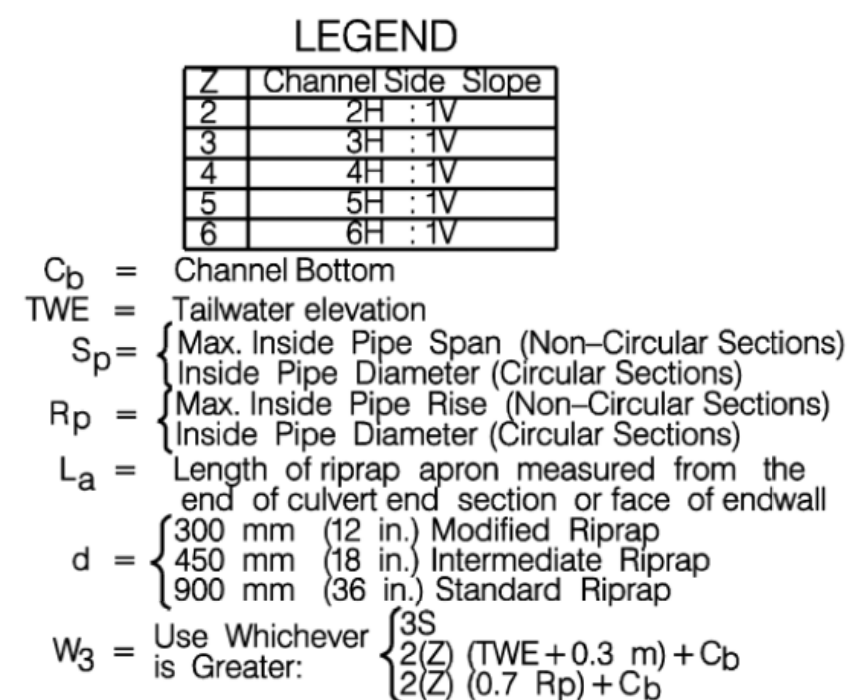
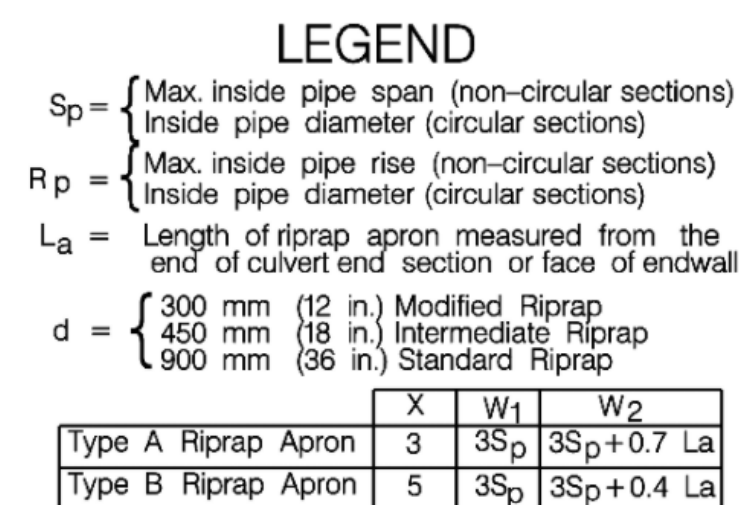
**ENVIRONMENTAL PERMIT PLANS - 05/05/20**[illegible]



ENVIRONMENTAL PERMIT PLANS - 05/05/20

				DESIGNER/DRAFTER: SMT		 <b>STATE OF CONNECTICUT</b> DEPARTMENT OF TRANSPORTATION		SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b>		PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS</b>		TOWN: <b>NORWALK WESTPORT</b>		PROJECT NO. <b>0102-0368</b>	
				CHECKED BY: NAI				APPROVED BY:						DRAWING NO. <b>PMT-03</b>	
														SHEET NO.	
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020		Filename: ...\\HW_MSH_0102-0368_PMT-03.dgn									



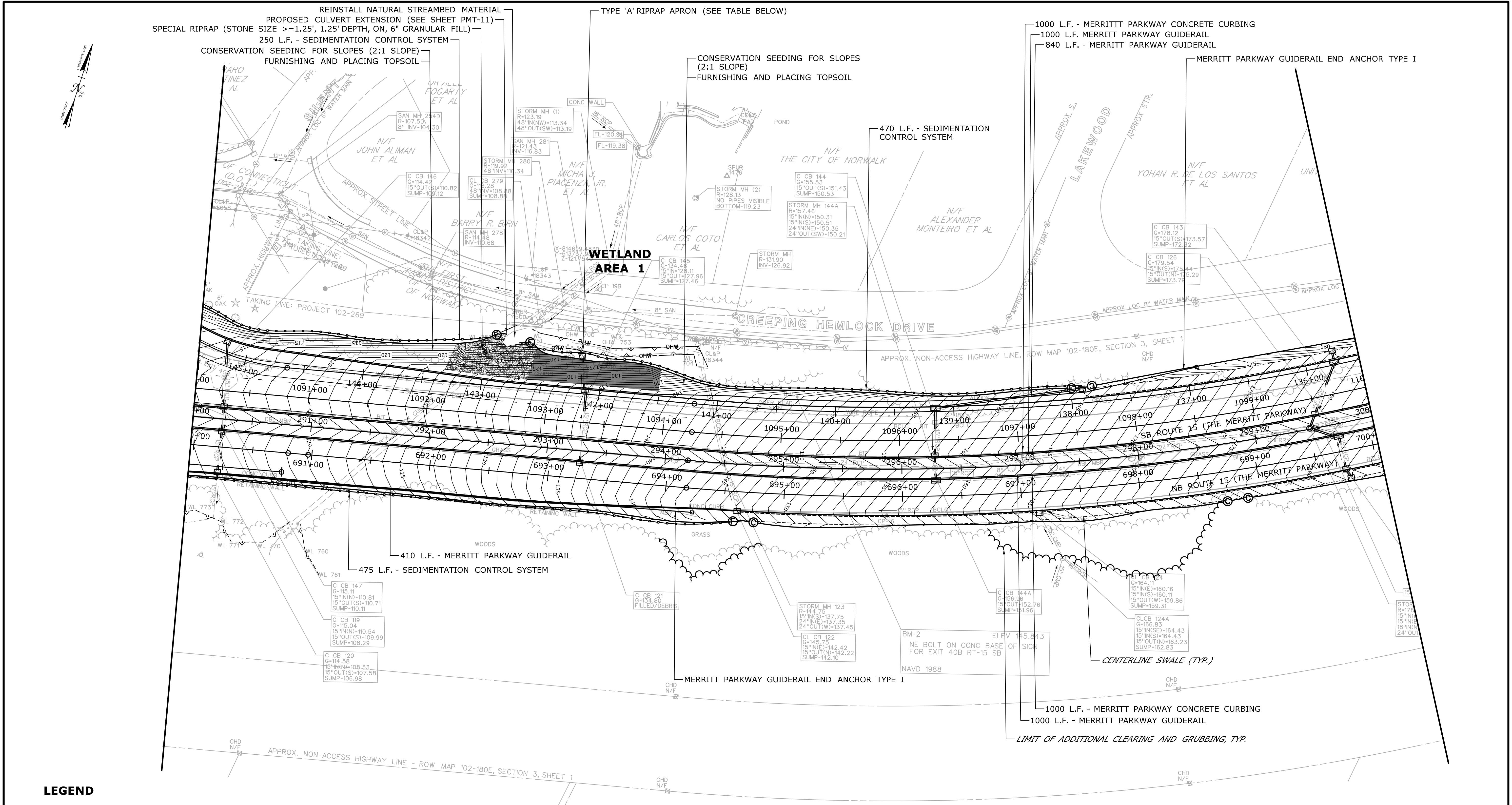


1. SCOUR HOLE TYPE AND RIPRAP SIZE SHALL BE DETERMINED BY THE DISTRICT DRAINAGE ENGINEER.
2. GROUND ELEVATION (FINISHED GRADE) SHALL NOT BE INCREASED.
3. WORK SHALL BE IN ACCORDANCE WITH THE DEEP 2004 STORMWATER QUALITY MANUAL.
4. ALL TEMPORARY WORK SHALL CONFORM WITH THE FLOOD MANAGEMENT GENERAL CERTIFICATION CONSTRAINTS.

- Sp = Max. inside pipe span (non-circular sections)  
or Inside pipe diameter (circular sections)
- Rp = Max inside pipe rise (non-circular sections)  
or Inside pipe diameter (circular sections)
- d = 12" with Modified Riprap  
18" with Intermediate Riprap  
36" with Standard Riprap
- Scour Hole Type 1: F = 0.5 Rp
- Scour Hole Type 2: F = Rp
- C = 3Sp + 6F
- B = 2Sp + 6F

1. WHERE NOTED ON PLANS, THE CONTRACTOR SHALL RESTORE DRAINAGE OUTFALLS TO THEIR FULL WORKING ABILITY. THE OUTFALLS SHALL BE CLEAR OF DEBRIS, FULLY CONNECTED, AND EFFECTIVELY HOLDING BACK SOIL SHOULD A HEADWALL STRUCTURE BE PRESENT.
2. DRAINAGE OUTFALL WORK CAN CONSIST OF:
  - i. OUTLET PROTECTION REPAIR (RE-ESTABLISH APRON/SCOUR HOLE).
  - ii. RECONSTRUCTION OF HEADWALLS, IF APPLICABLE.
  - iii. RECONNECTION OF DISCONNECTED OUTLET PIPES.
3. DETERMINATION OF THE EXTENT OF OUTFALL WORK WARRANTED AT EACH OUTFALL SHALL BE DECIDED BY THE ENGINEER.

[illegible]



LEGEND

- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- ORDINARY HIGH WATER
- EROSION CONTROL MATTING (TYPE D)
- RIPRAP FOR OUTLET APRONS/PREFORMED SCOUR HOLES AND SLOPE PROTECTION

OUTLET PROTECTION TABLE

STATION	OFFSET	RIPRAP SIZE	L	W	W	D
293+25	77' LT	STANDARD	5'*	4'	8'	36"

\*DO NOT ENTER WETLANDS

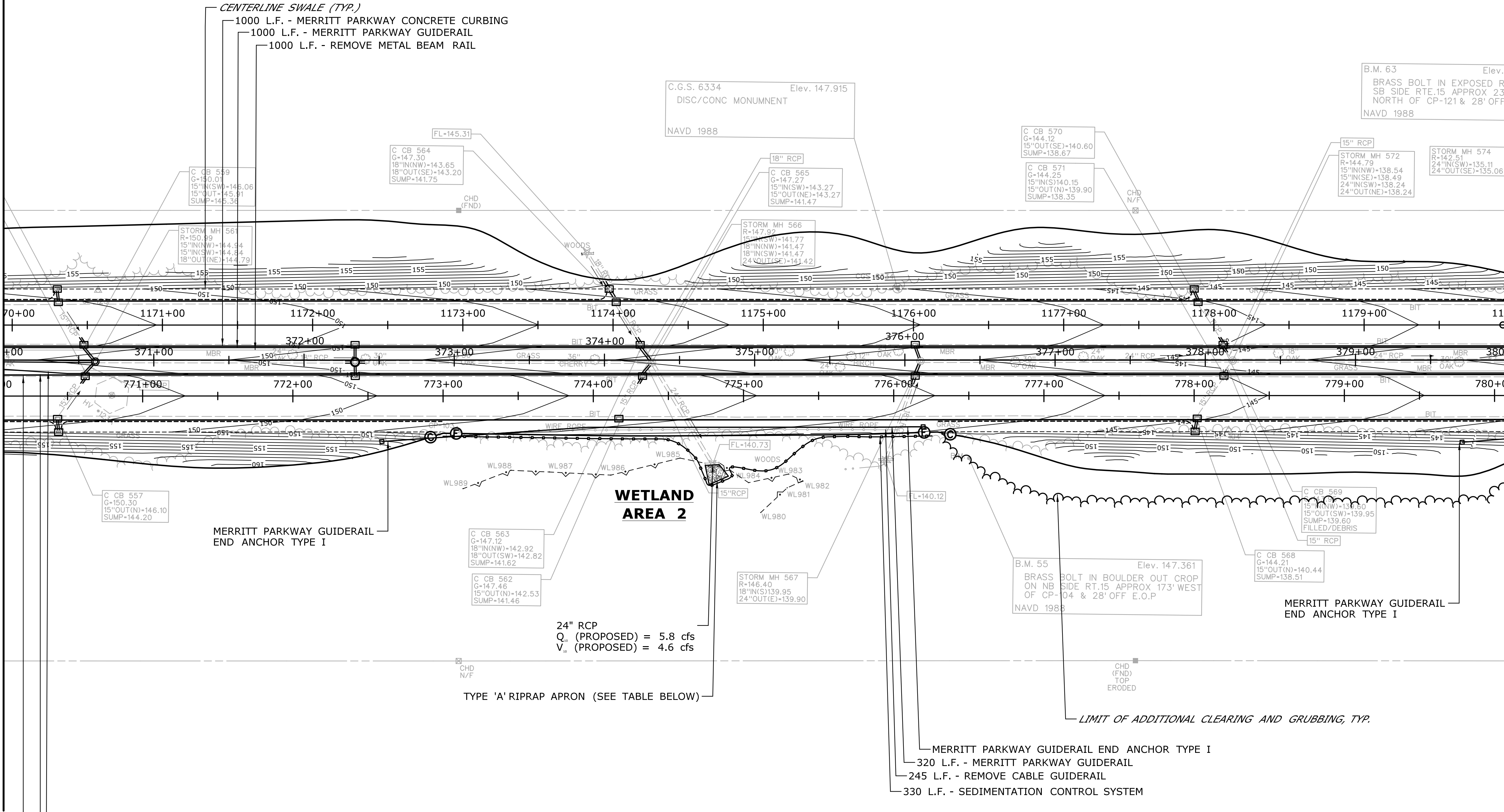
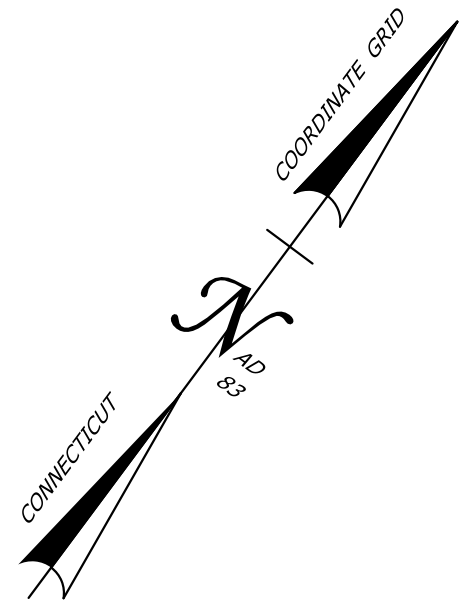
GENERAL NOTES

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES GREATER THAN 2:1 SHALL BE PROTECTED BY EITHER SPECIAL RIPRAP (1.25' DEPTH, ON, 6" GRANULAR BASE) OR EROSION CONTROL MATTING (TYPE D).
- DISTURBED AREAS BELOW THE WETLAND LIMIT SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE SEEDED WITH CONSERVATION SEEDED FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.
- INVASIVE SPECIES CONTROL SHALL BE COMPLETED WITHIN THE PROJECT LIMITS WHEREVER EXISTING GROUND IS BEING DISTURBED.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE IN FEET 0 40 80 SCALE 1"=40'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...\\HW_MSH_0102-0368_PMT-05.dgn	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT DRAWING TITLE: HIGHWAY PLAN	PROJECT NO. 0102-0368 DRAWING NO. PMT-05 SHEET NO.
------	------	----------------------	-----------	------------------------	---	--	---	--	--	--





1000 L.F. - MERRITT PARKWAY  
CONCRETE CURBING  
1000 L.F. - MERRITT PARKWAY GUIDERAIL  
1000 L.F. - REMOVE METAL BEAM RAIL

LEGEND

- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- RIPRAP FOR OUTLET APRONS/PREFORMED SCOUR HOLES AND SLOPE PROTECTION

OUTLET PROTECTION TABLE

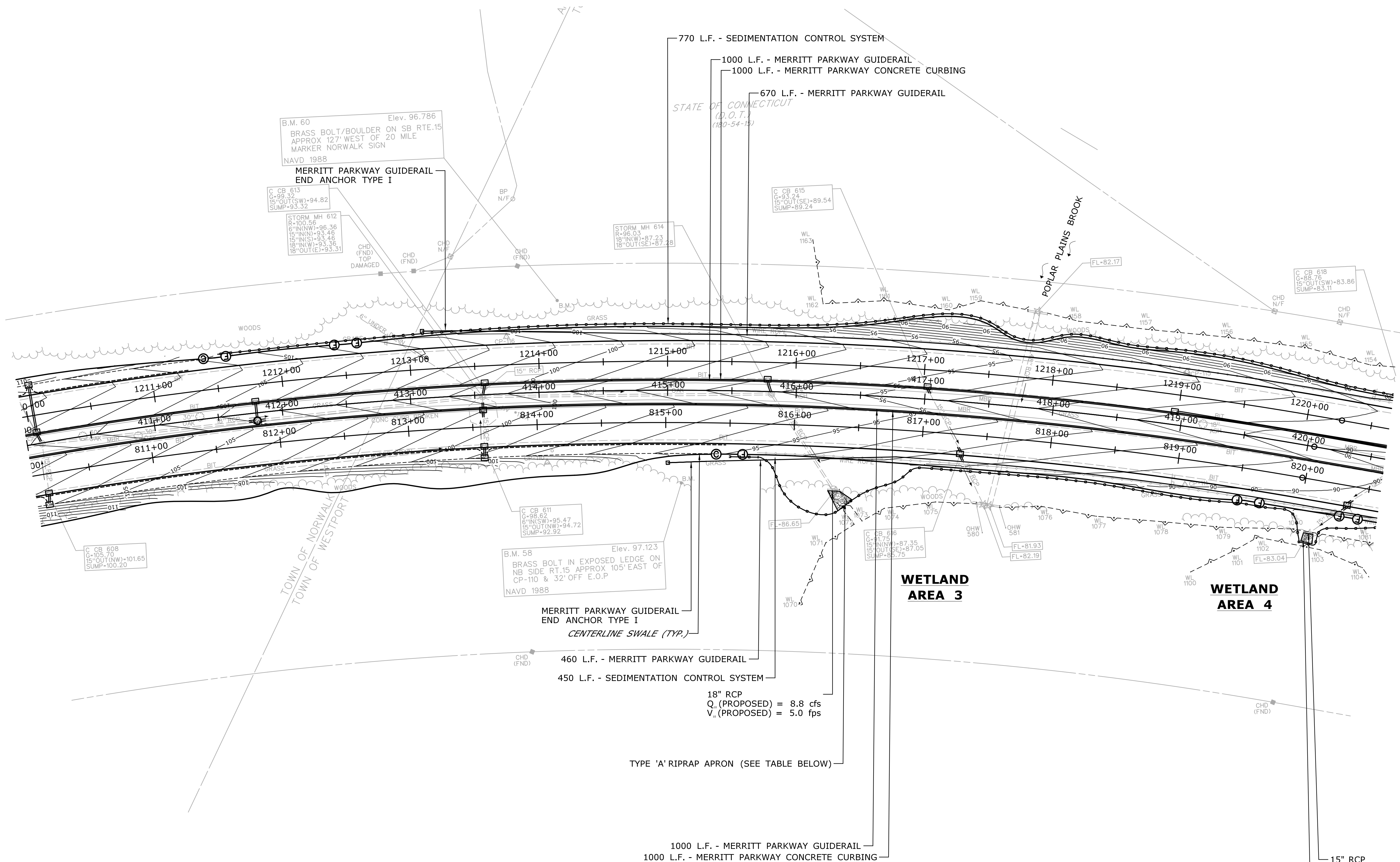
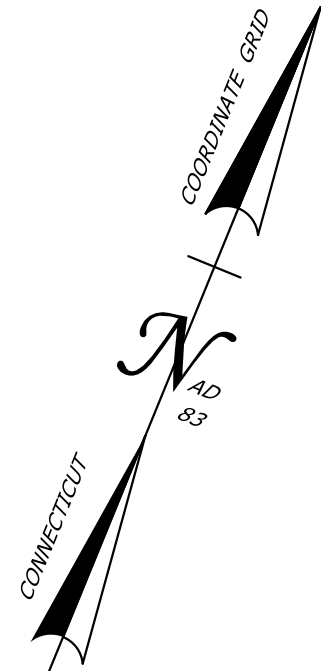
STATION	OFFSET	RIPRAP SIZE	L	W	W	D
374+75	68' RT	MODIFIED	11'	6'	14'	12"


GENERAL NOTES

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES 2:1 OR LESS SHALL RECEIVE CONSERVATION SEEDING FOR SLOPES AND TOPSOIL.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE IN FEET 0 40 80 SCALE 1"=40'	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\HW...MSH_0102-0368_PMT-06.dgn	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b> DRAWING TITLE: <b>HIGHWAY PLAN</b>	PROJECT NO. <b>0102-0368</b> DRAWING NO. <b>PMT-06</b> SHEET NO.
------	------	----------------------	-----------	------------------------	---	--	--	---	---	--



- LEGEND**
- SEDIMENTATION CONTROL SYSTEM (SCS)
  - - - STATE/FEDERAL WETLANDS
  -  RIPRAP FOR OUTLET APRONS

**OUTLET PROTECTION TABLE**

STATION	OFFSET	RIPRAP SIZE	L	W	W	D
416+50	75' RT	MODIFIED	14'	5'	14'	12"
420+00	66' RT	MODIFIED	7'	4'	9'	12"

**GENERAL NOTES**

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES 2:1 OR LESS SHALL RECEIVE CONSERVATION SEEDING FOR SLOPES AND TOPSOIL.

**ENVIRONMENTAL PERMIT PLANS - 05/05/20**

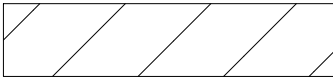
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG	CHECKED BY: NAI	SCALE IN FEET 0 40 80 SCALE 1"=40'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT	PROJECT NO. 0102-0368
									APPROVED BY:		DRAWING TITLE: HIGHWAY PLAN	SHEET NO. PMT-07




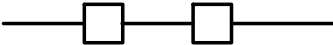
WATERCOURSE/WETLAND IMPACT TABLE

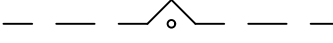
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)


LEGEND

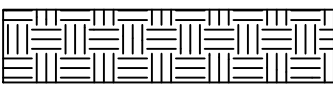
TEMPORARY WETLAND/WATERCOURSE IMPACT

PERMANENT WETLAND/WATERCOURSE IMPACT

SEDIMENTATION CONTROL SYSTEM (SCS)

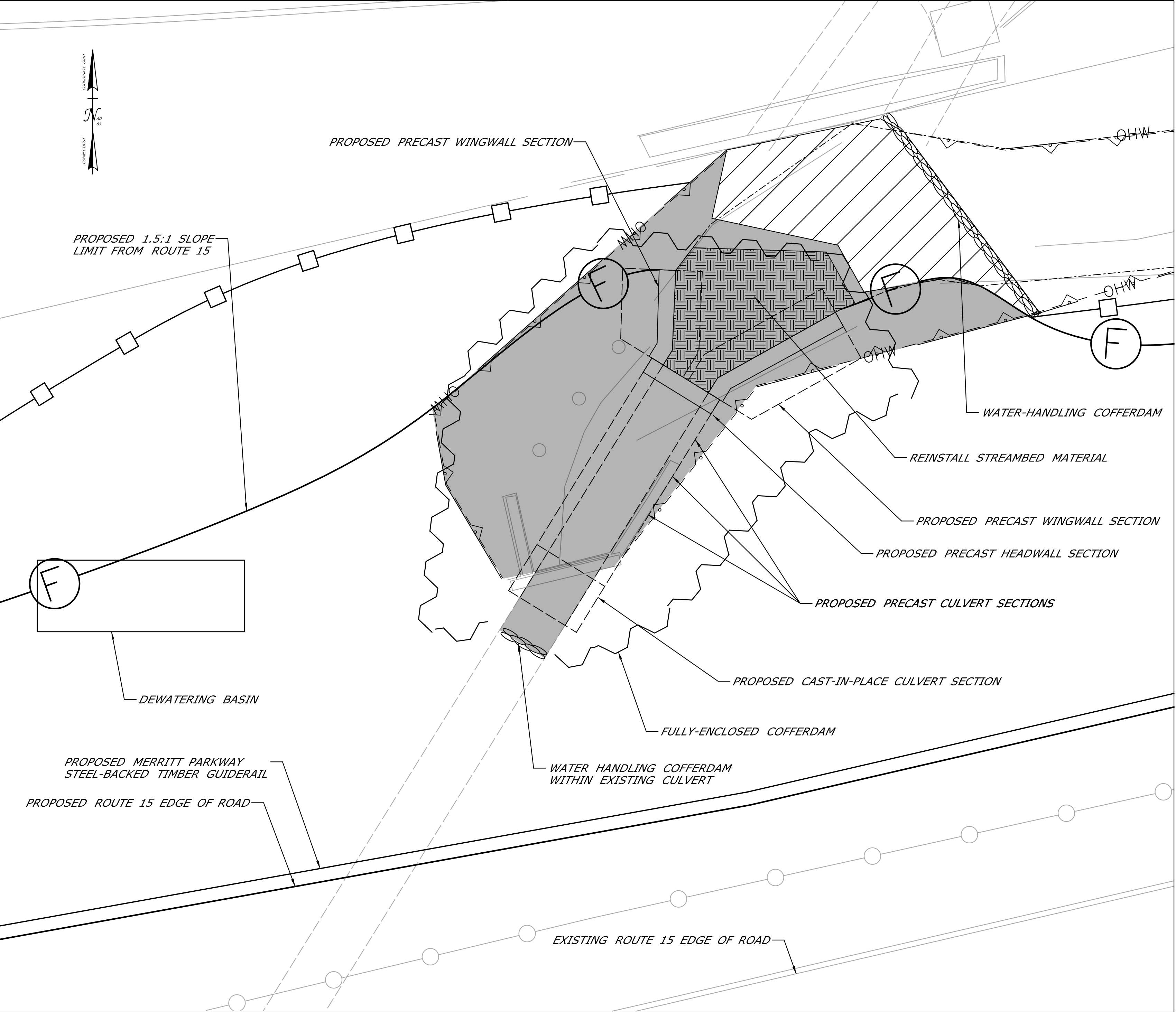
STATE/FEDERAL WETLANDS

ORDINARY HIGH WATER (OHW)

NATURAL STREAMBED MATERIAL

GENERAL NOTES

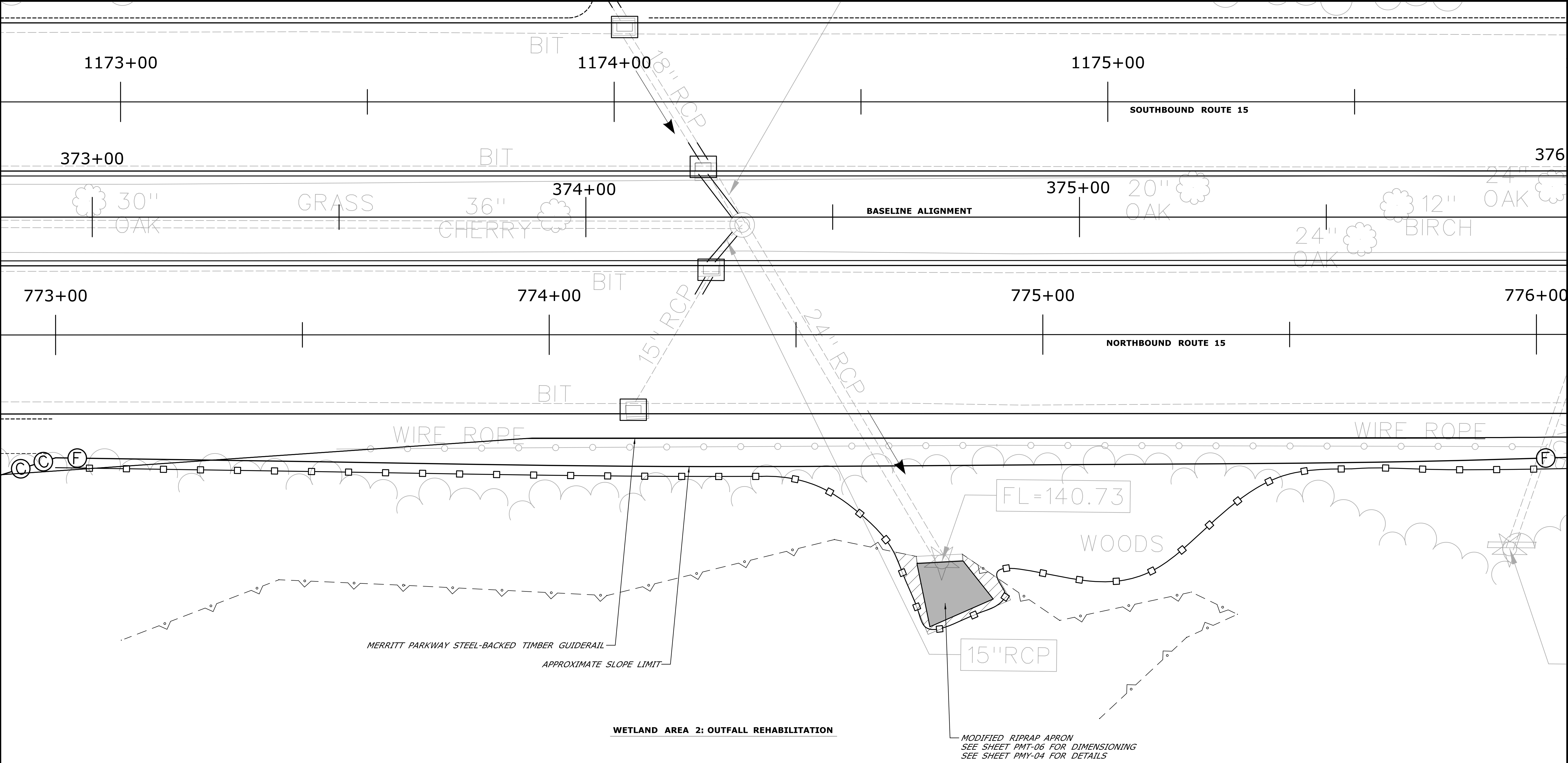
1. THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.



WETLAND AREA 1: CULVERT EXTENSION  
WETLAND/WATERCOURSE IMPACT DETAIL

ENVIRONMENTAL PERMIT PLANS - 06/16/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/16/2020	DESIGNER/DRAFTER: WJPG	CHECKED BY: NAI	SCALE: 1" = 5'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	APPROVED BY:	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT	DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	PROJECT NO. 0102-0368	DRAWING NO. PMT-08	SHEET NO.
------	------	----------------------	-----------	-------------------------	---------------------------	--------------------	----------------	--	---	--------------	--	------------------------------	--	--------------------------	-----------------------	-----------



LEGEND

TEMPORARY WETLAND/WATERCOURSE IMPACT

PERMANENT WETLAND/WATERCOURSE IMPACT

SEDIMENTATION CONTROL SYSTEM (SCS)

STATE/FEDERAL WETLANDS

ORDINARY HIGH WATER (OHW)

WATERCOURSE/WETLAND IMPACT TABLE					
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

- GENERAL NOTES
1.

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2.

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.

DATE

REVISION DESCRIPTION

SHEET NO.

Plotted Date: 5/7/2020

DESIGNER/DRAFTER:  
WJPG

CHECKED BY:  
NAI

SCALE: 1" = 10'

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW\_MSH\_0102-0368\_PMT-09.dgn

SIGNATURE/  
BLOCK:  
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

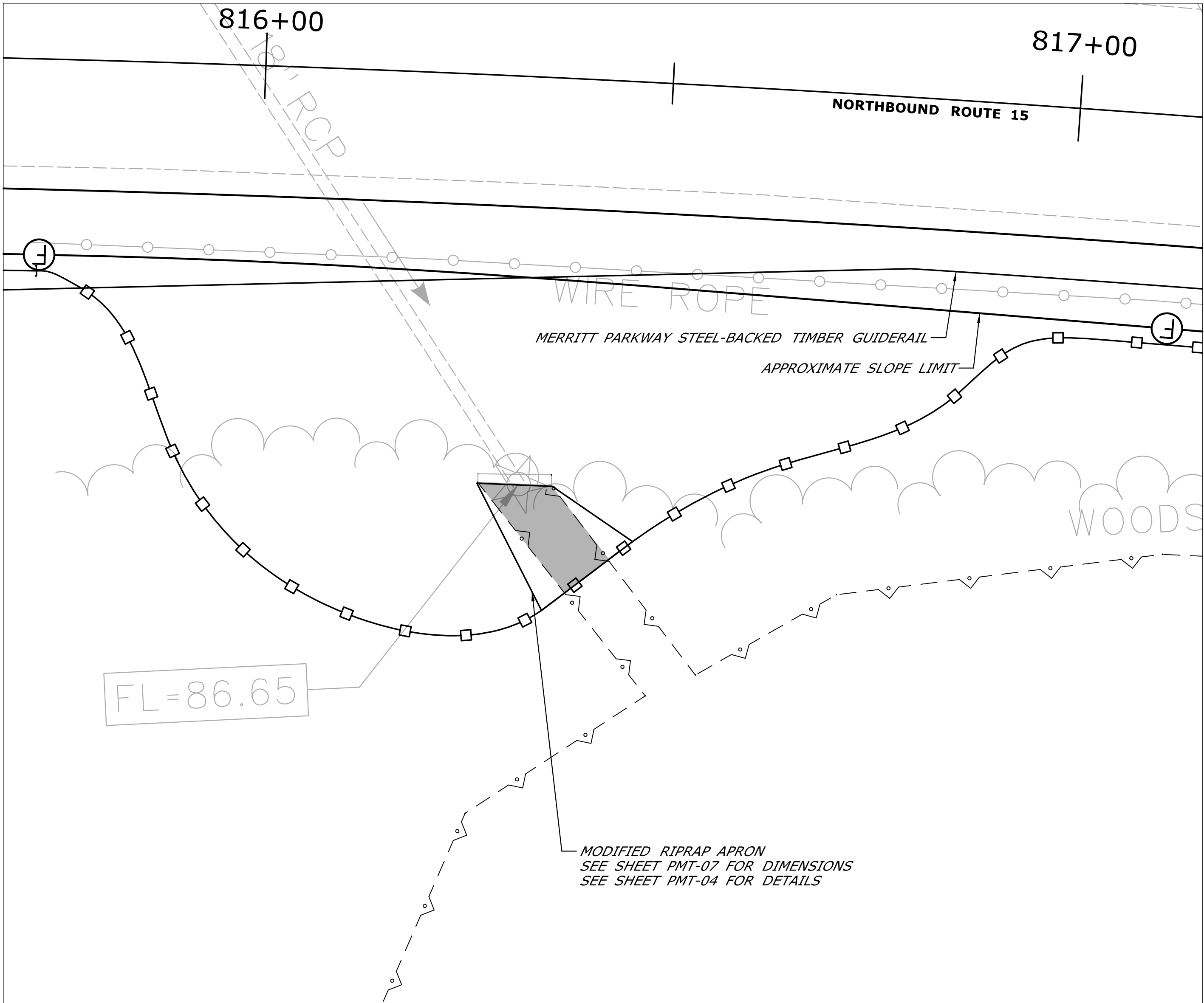
TOWN:  
NORWALK  
WESTPORT

DRAWING TITLE:  
WETLAND/WATERCOURSE  
IMPACT PLAN

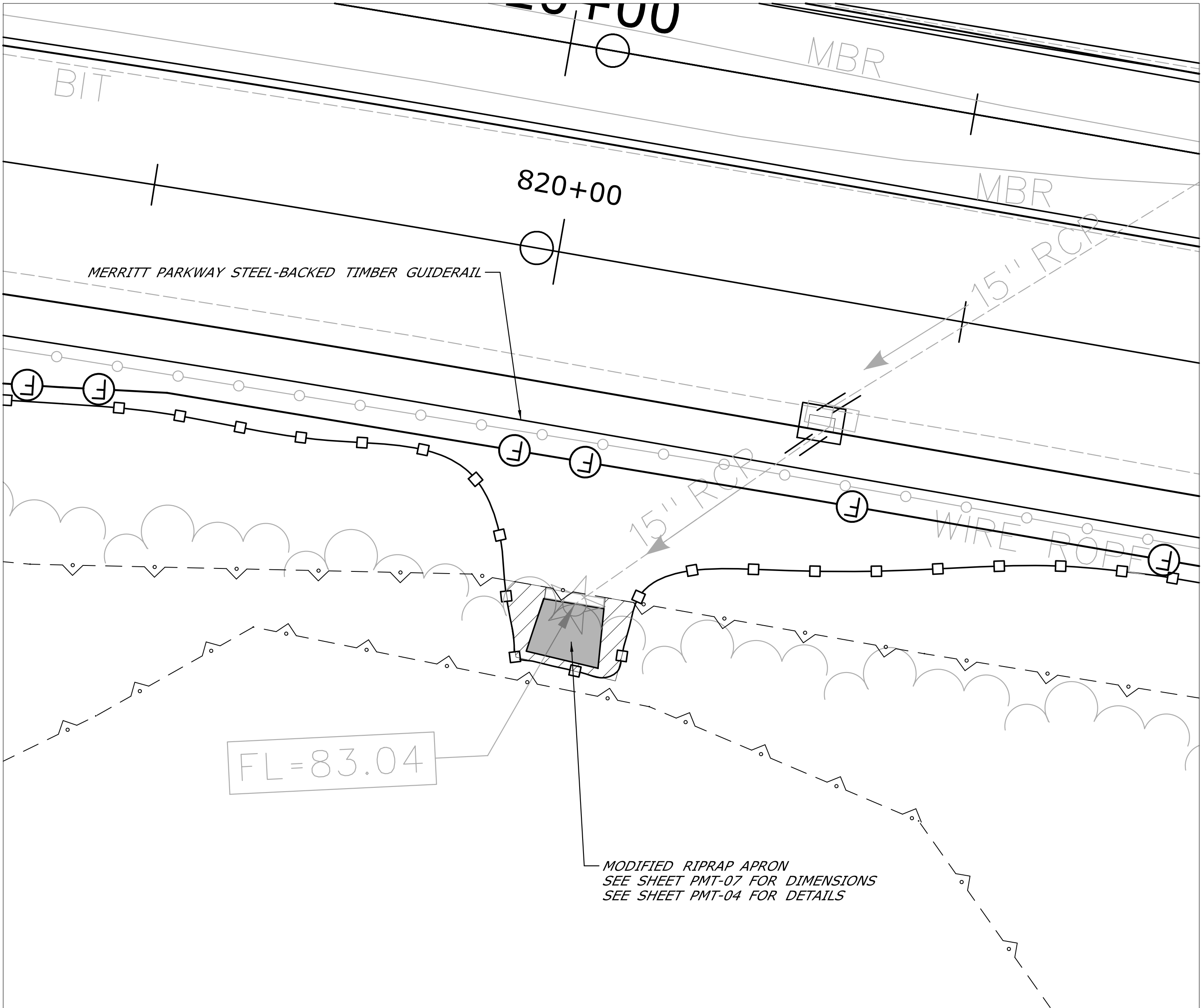
PROJECT NO.  
0102-0368

DRAWING NO.  
PMT-09

SHEET NO.



WETLAND AREA 3: OUTFALL REHABILITATION



WETLAND AREA 4: OUTFALL REHABILITATION

LEGEND

TEMPORARY WETLAND/WATERCOURSE IMPACT

PERMANENT WETLAND/WATERCOURSE IMPACT

SEDIMENTATION CONTROL SYSTEM (SCS)

STATE/FEDERAL WETLANDS

OHW

ORDINARY HIGH WATER (OHW)

WATERCOURSE/WETLAND IMPACT TABLE					
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

- GENERAL NOTES
1.

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2.

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT TEHE NOTED REGULATED AREAS.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.

DATE

REVISION DESCRIPTION

SHEET NO.

Plotted Date: 5/7/2020

DESIGNER/DRAFTER:  
WJPG

CHECKED BY:  
NAI

SCALE: 1" = 5'

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW...MSH\_0102-0368\_PMT-10.dgn

SIGNATURE/  
BLOCK:  
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

TOWN:  
NORWALK  
WESTPORT

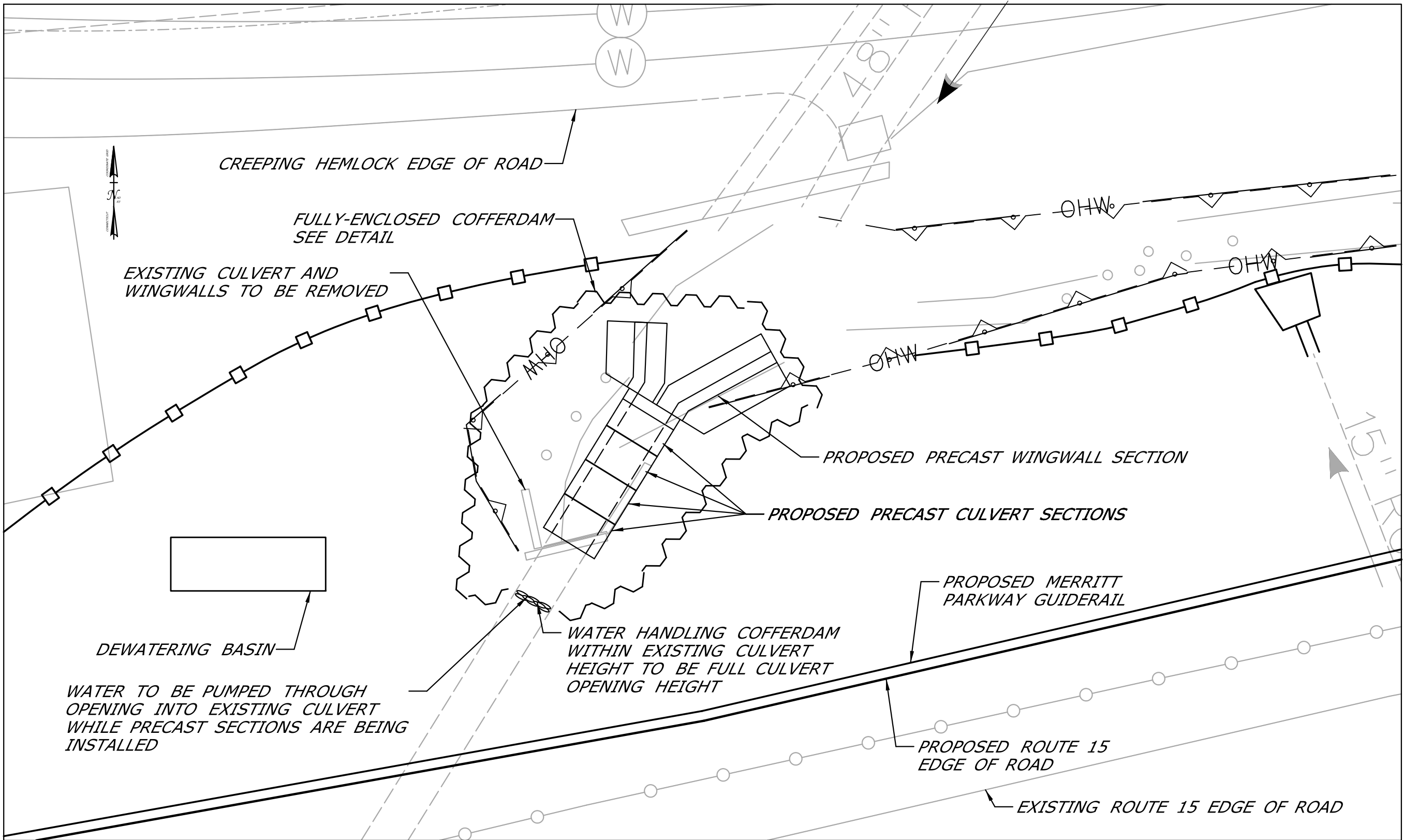
DRAWING TITLE:  
WETLAND/WATERCOURSE  
IMPACT PLAN

PROJECT NO.  
0102-0368

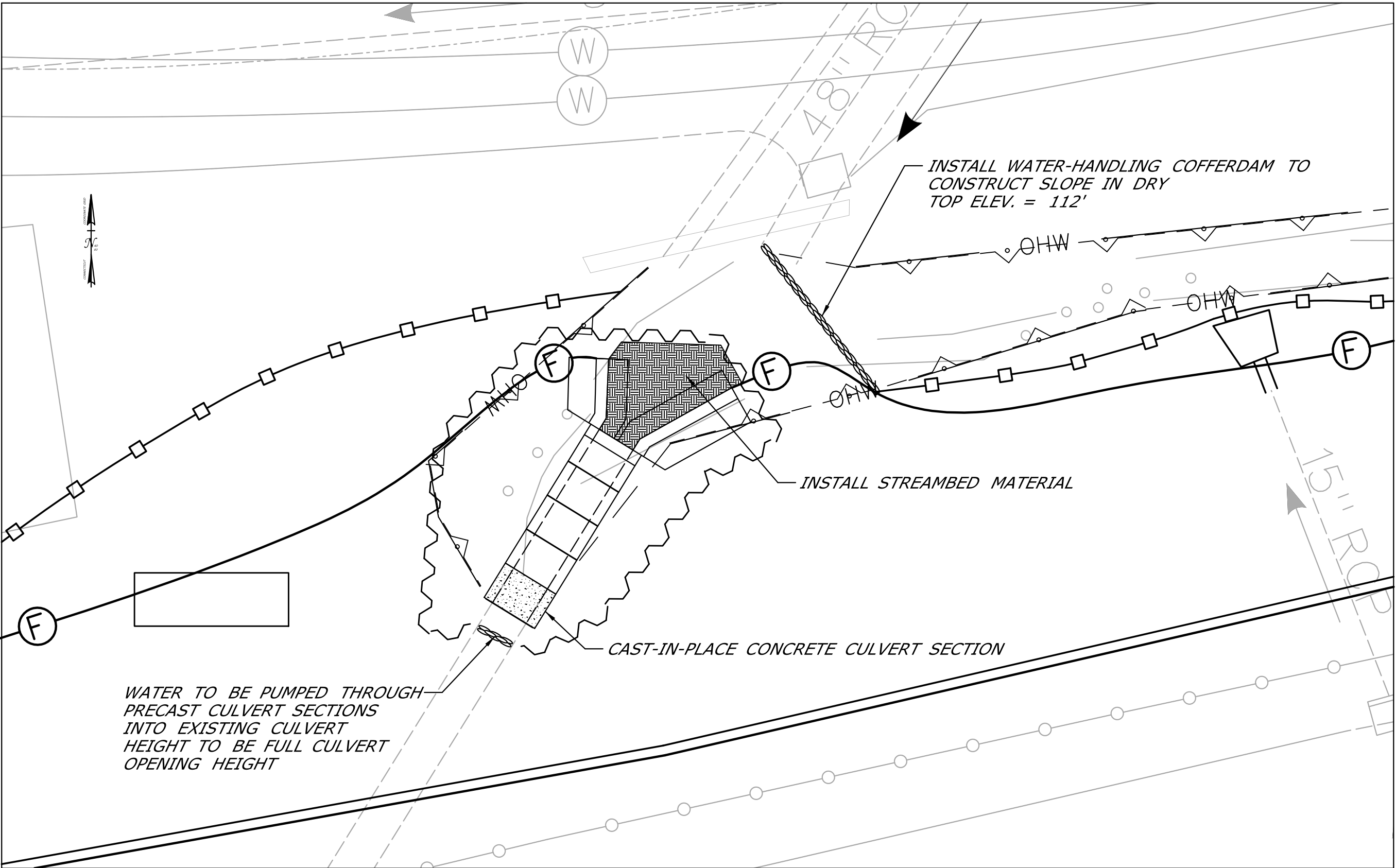
DRAWING NO.  
PMT-10

SHEET NO.

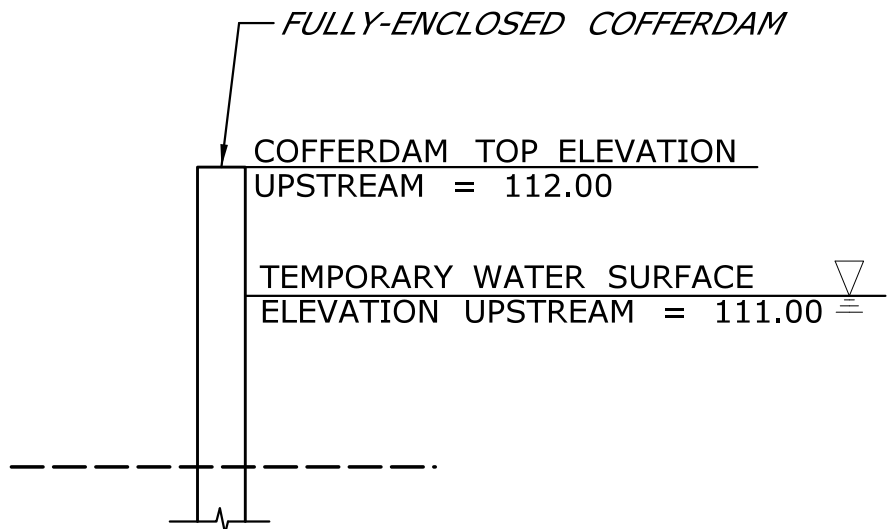




STAGE 1: INSTALL PRECAST CONCRETE CULVERT SECTIONS, WINGWALLS, AND HEADWALL



STAGE 2: INSTALL CAST-IN-PLACE CONCRETE CULVERT SECTION



COFFERDAM DETAIL

TEMPORARY HYDRAULIC DATA

AVERAGE DAILY FLOW	0.34 cfs
AVERAGE SPRING FLOW	0.66 cfs
2-YEAR FREQUENCY DISCHARGE	57 cfs
SHORT-TERM, LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 5 x AVG SPRING FLOW	4 cfs
GRAVITY FLOW BYPASS PIPE TEMPORARY DESIGN DISCHARGE = 5 x AVG SPRING FLOW	4 cfs
2-YEAR WATER SURFACE ELEVATION UPSTREAM	112 ft

SUGGESTED SEQUENCE OF CONSTRUCTION

- STAGE 1:
1. INSTALL SEDIMENTATION CONTROL SYSTEM (SCS).
  2. PERFORM CLEARING AND GRUBBING, AS NECESSARY. CONTROL OF INVASIVE SPECIES.
  3. INSTALL TEMPORARY DEWATERING BASIN. BASIN TO REMAIN THROUGH BOTH STAGES.
  4. INSTALL TEMPORARY WATER HANDLING SYSTEM INCLUDING FULLY-ENCLOSED WATER HANDLING COFFERDAMS AND PUMP. WATER HANDLING SYSTEM TO REMAIN THROUGH BOTH STAGES.
  5. SAWCUT AND REMOVE EXISTING HEADWALL AND WINGWALLS.
  6. INSTALL PRECAST CONCRETE CULVERT SECTIONS, WINGWALLS, AND HEADWALL.
- STAGE 2:
1. RELOCATE TEMPORARY PIPE OR PUMP THROUGH NEWLY INSTALLED PRECAST CONCRETE CULVERT SECTIONS. INSTALL TEMPORARY WATER-HANDLING COFFERDAM (SANDBAGS, AS SHOWN IN STAGE 2 DIAGRAM).
  2. INSTALL CAST-IN-PLACE CONCRETE CULVERT SECTION.
  3. REMOVE TEMPORARY WATER HANDLING SYSTEM. COFFERDAMS ARE TO BE CUT 1' BELOW GRADE AND LEFT IN PLACE. COMPLETE FINAL GRADING OF INLET PROTECTION.
  4. PERFORM FINAL GRADING, INSTALL NATURAL STREAMBED MATERIAL, RIPRAP, AND PLANTINGS/SEEDING.
  5. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

WATER HANDLING NOTES

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.
2. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY WATER HANDLING SYSTEM IS NOT IN PLACE WITHOUT APPROVAL FROM THE ENGINEER.
3. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
4. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.
5. ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
6. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND IMPACT SHEETS OF THE PERMIT PLANS.
7. IF A SHORT DURATION PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND HAVE A MINIMUM CAPACITY AS SHOWN IN THE TEMPORARY HYDRAULIC TABLE. PUMP SYSTEM PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS, THE ENGINEER MAY APPROVE A CONSTRUCTION WATER HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.

IN-WATER WORK RESTRICTIONS

1. UNCONFINED INSTREAM WORK IS RESTRICTED TO THE PERIOD OF JUNE 1ST THROUGH SEPTEMBER 30TH, INCLUSIVE.

ENVIRONMENTAL PERMIT PLANS - 06/16/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/16/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE: 1" = 10'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...\\HW..MSH..0102-0368..PMT-11.dgn	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT DRAWING TITLE: AREA 1 STAGING/ WATER HANDLING PLAN	PROJECT NO. 0102-0368 DRAWING NO. PMT-11 SHEET NO.
------	------	----------------------	-----------	-------------------------	--	---	---	--	--	--

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE PRECAST CONCRETE CULVERT SECTIONS AND CAST-IN-PLACE CONCRETE CULVERT SECTION INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OUTSIDE OF THE CONCRETE CULVERT TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

OPENNESS RATIO (OR):

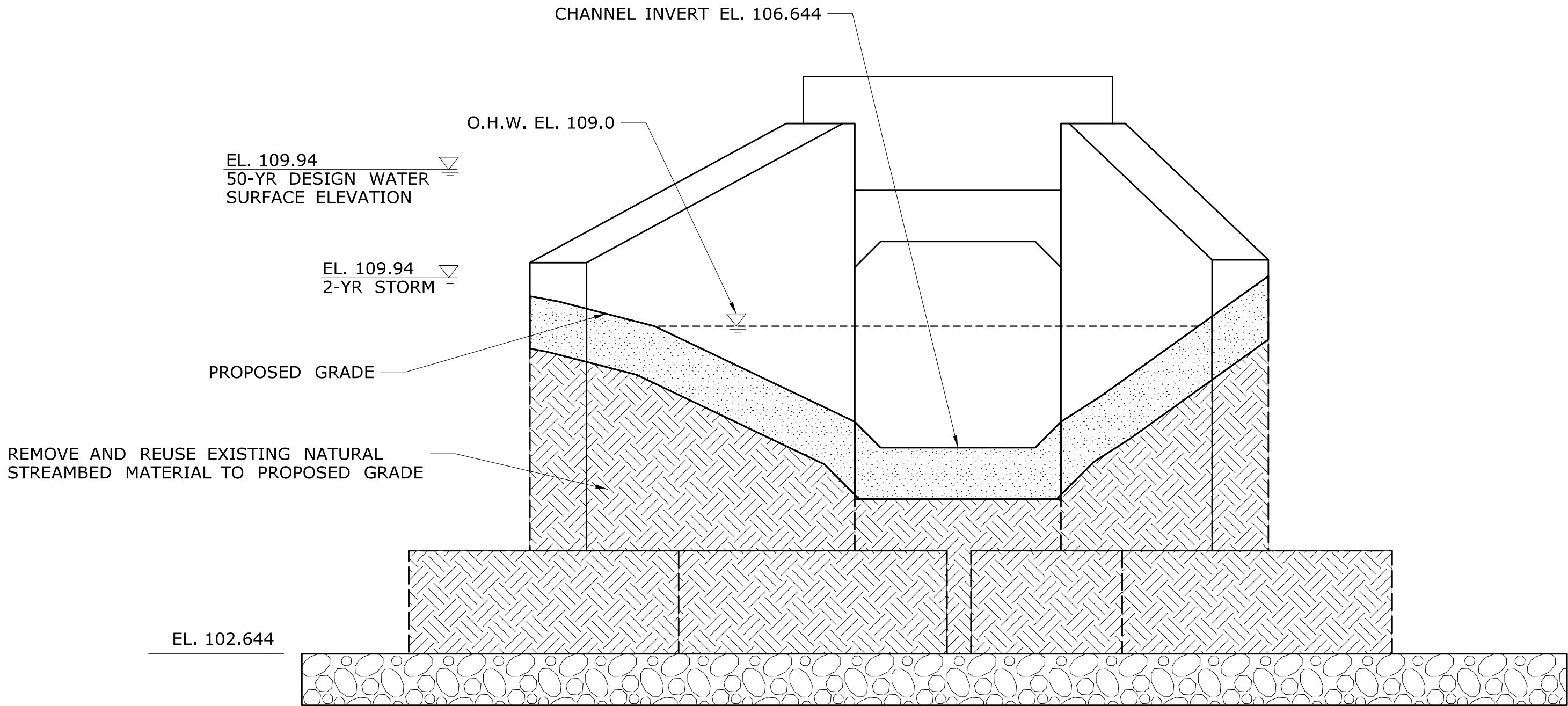
OR = OPEN AREA / CULVERT LENGTH  
OR = 15.5 S.F. / 234 FT. = 0.066 FT.  
0.066 < 0.82 FT. (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 15.85 FT UPSTREAM (OHW)  
1.2 X BFW = 19.02 FT.  
19.02 FT. > 4 FT. PROPOSED CULVER SPAN

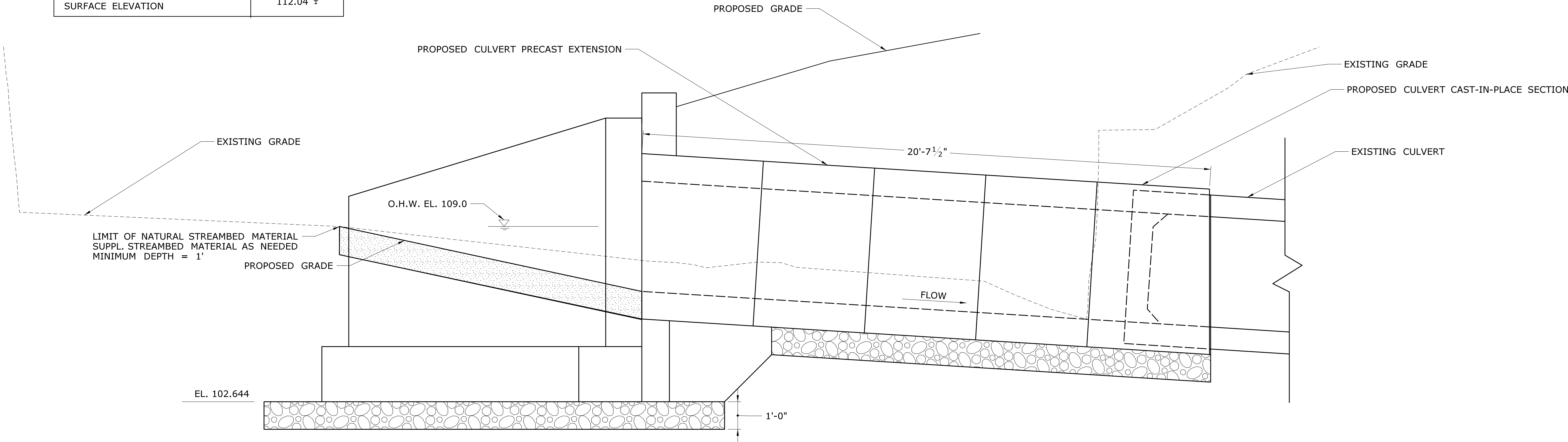
HYDRAULIC DATA

DRAINAGE AREA	0.178 SQ. MI.
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	140 CFS
AVERAGE DAILY FLOW ELEVATION	106.60 ±
50-YR UPSTREAM DESIGN WATER SURFACE ELEVATION	112.04 ±



INLET ELEVATION



SCALE: 1/2" = 1'-0"



CULVERT EXTENSION SECTION

SCALE: 1/2" = 1'-0"

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: AH	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\HW..MSH..0102-0368..PMT-12.dgn		SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b>	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b>	PROJECT NO. <b>0102-0368</b>
					CHECKED BY: KP			APPROVED BY:			DRAWING NO. <b>PMT-12</b>
											SHEET NO.
					Plotted Date: 5/20/2020						

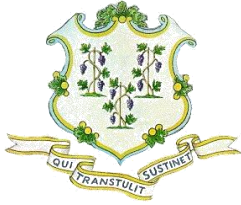
USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 4: Section 106 Coordination**





# STATE OF CONNECTICUT

## DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546



### Transmittal:

---

**From:** Mark McMillan  
**Date:** July 31, 2019  
**To:** Cathy Labadia, Deputy State Historic Preservation Officer

---

**Project:** State No.: 102-296  
F.A.P. No.: 0015(104)  
Project Title: Merritt Parkway Safety Improvements  
Route 15 from South Avenue to Newtown Turnpike  
Towns: New Canaan, Norwalk and Westport

---

**Subject:** SHPO Consultation Documentation

---

#### *Description of Activity*

Using federal and state funds, the Connecticut Department of Transportation (CTDOT) proposes to install safety improvements to a 6-mile long segment of the Merritt Parkway (Route 15). This is the eighth and final project in a series of corridor improvement projects along the Merritt. A Rehabilitation Study is currently underway that will determine the extents of deterioration and develop repair alternatives. The following actions are proposed:

- Resurfacing the roadway within the project area. Non-compliant cross slopes will be corrected to meet current standards
- Rehabilitating and restoring the historic bridges in accordance with the *Merritt Parkway Bridge Restoration Guide*
- Widening the existing shoulders from 4 feet to 8 feet that consists of 4 feet of pavement and 4 feet of reinforced grass
- Replacing the various guiderails within the project area with a standardized timber Merritt Parkway Guide Rails
- Improving safety by removing rock ledges and other fixed objects within the recommended clear zone
- Improving drainage by installing slip lined concrete curb and gutter system along the median
- Rehabilitating the existing landscaping by removing invasive species, preserving existing plants, and installing additional plantings in accordance with the *Merritt Parkway Landscape Master Plan*. This will include consulting with stakeholders regarding tree removal within the project area.

The Merritt Parkway is listed on the National Register of Historic Places (NRHP).<sup>1</sup> It is significant for both its unique bridges and landscape design. The repairs to the bridges range from minor cosmetic work to major construction. In some cases, this will require the removal of ballast material on top of the structures in order to install a new waterproof membrane beneath the roadway.

Although it is located outside the project area, minor repair work to the Lapham Road underpass (Bridge #05810) will be included in the construction of this project. Final design for the project is scheduled for May, 2020 with construction anticipated to begin later the same year.

### *Technical Review of Project*

The Merritt Parkway is a transportation corridor that was added to the NRHP in 1991. Construction began in the late 1930s and the first segment opened to traffic in 1938. The Merritt exemplifies parkway design, which combined engineering, landscaping, and architecture to create a recreational and aesthetically-pleasing transportation byway. Each bridge and overpass has a unique design, though most are executed in Art Deco or Moderne styles and use concrete as their primary construction material. George Dunkelberger, the architect of the Parkway's distinctive bridges, pushed the envelope of the material by employing sgraffito, decorative formwork, and precast architectural panels to enliven his designs.

These materials and techniques are significant character-defining features of the Merritt Parkway bridges. The 1991 *Merritt Parkway Bridge Restoration Guide* was published to address the specialized care of these features.

The project area begins at Route 124 (log mile 14.14) in New Canaan and continues northward to the Newtown Turnpike (Bridge #00726, log mile 20.24) in Westport. Within it are 20 bridge/culvert structures that range from simple concrete pipes to prominent underpass bridges. During early concept development of this project, CTDOT's bridge design team performed an in-field assessment of each of the bridges to better understand their character-defining features and current conditions. Rehabilitation measures were developed for 17 of the 20 structures. At minimum, work will typically include the following tasks:

- Removing invasive vegetation from the bridges
- Cleaning all surfaces of the bridge
- Removing graffiti and/or visually incompatible graffiti cover
- Repairing concrete with appropriate historic concrete mixes
- Installing a code-compliant guiderail system inboard of the bridge parapets; the design system will vary from bridge to bridge
- Installing pedestrian fencing on bridge underpasses (those that carry roads over the Merritt Parkway)

---

<sup>1</sup> National Park Service, *National Register of Historic Places Registration Form for Merritt Parkway (NRHP #91000410)*, listed on April 17, 1991.



The following sections will describe repairs proposed for each the structures, along with some of the existing conditions and challenges that each present. It will also account for the structures that are located within the project area but are excluded from the project scope. Unless otherwise noted, all of the following are contributing elements to the Merritt Parkway historic property.

#### Bridge #05810 Lapham Road

Lapham Road lays 0.6 miles south of the project limit. The bridge was built in 1937 as a single span rigid frame structure. In 1989, its superstructure was replaced with a reinforced concrete slab. Precast concrete panels installed on the fascia recreate bridge's original segmental arch appearance. In October 2013, the fascia was damaged when it was struck by an unauthorized truck was travelling northbound (Image 1).

The bridge underwent rehabilitation in 2015, which included repairs to the deteriorating original concrete of the wingwalls and pylons. Addressing the damaged fascia was not included in that work beyond removing the broken pieces of concrete and stabilizing the fascia. Under this project, a new precast concrete fascia panel will be fabricated and installed. A mineral stain coating will be applied to the fascia from pylon to pylon to cover the existing mismatched generations of concrete.

#### Bridge #00712 South Avenue

South Avenue is a single span concrete rigid frame bridge that was built in 1937. It underwent rehabilitation in 1997 and again in 2016. During the 1997 rehabilitation, cast stone decoration was altered or removed entirely. These included a projecting belt course that spanned between the pylons on each span's fascia, two state seals set at the center of the spans and four sunburst decorations (Image 2). Under this project, the missing elements will be recreated and reinstalled. Because this bridge was recently rehabilitated, no other repairs beyond the restoration of the missing elements is required.

#### Bridge #00713 White Shade Oak

The bridge was built in 1938 and underwent a major rehabilitation in 1991. It is a single span reinforced concrete rigid frame structure (Image 3). Opposing traffic lanes are separated by a metal beam guiderail installed in the narrow median strip. During the 1991 rehabilitation, the bridge's previously uncoated concrete was painted white.

The project will perform repairs to the concrete and proposes to treat the surfaces with a mineral stain that is tinted white. Mineral stains are a type of product that bond with the concrete substrate rather than forming a film over it. It has the appearance of paint, but allows the concrete pore structure to express water vapor. This reduces the risk of damage caused by trapped moisture and freeze/thaw strains.

#### Bridge #02144 Route 15 over Fivemile River

*Bridge #02144 is a three span culvert that conveys the Five Mile River beneath Route 15. It was originally installed in 1937 and underwent rehabilitation in 1975. The culvert is rated to be in Satisfactory structural condition. No work is planned for this structure.*

#### Bridge #05811 Marvin Ridge

Bridge #00714 was a concrete rigid frame structure that was built in 1937. In 1989, it was replaced by Bridge #05811, which had a new superstructure installed on new concrete abutments. The original wingwalls and pylons of Bridge #00714 were retained and incorporated into the new bridge. These feature cast stone urns set against blue backgrounds (Image 4).

Changing from a rigid frame structure required the introduction of joints between the new superstructure and substructure. Under this project, the existing sealant in these joints will be replaced (Image 5). As with the other bridges that carry traffic over the Merritt Parkway, a pedestrian fence will be installed.

#### Bridge #00715 Route 15 over New Canaan Avenue

Bridge #00715 was built in 1937. In 1994, it underwent a substantial alteration in which the deck was replaced and the overall structure was widened to accommodate new exit ramps (Image 6). This entailed the demolition of the original wing walls and parapets. Only cleaning and minor rehabilitation work is planned for this bridge.

#### Bridge #02145 Route 15 over unnamed brook

*Bridge #2145 is a concrete box culvert that conveys an unnamed brook beneath the Merritt Parkway near mile marker 16.17. The culvert is in Satisfactory condition and has been excluded from the project scope.*

#### Bridge #00716 Comstock Hill

This single span concrete rigid frame bridge was built in 1938 and rehabilitated in 1988. Its pylons feature cast stone bas relief figures of either a pilgrim or Native American (Images 7 & 8).

The bridge exhibits horizontal cracking and efflorescence on its fascia (Image 9). Work planned include the removal of the bridge deck to facilitate the installation of a new waterproof membrane. The unsound and cracked concrete will be replaced with concrete that is formulated to match the physical qualities and appearance of the historic concrete.

The bridge have been painted with graffiti cover of different colors; resulting in a patchwork appearance (Image 10). These coatings and the underlying graffiti will be removed. If they cannot be successfully removed, the application of a uniform graffiti coating will be considered. This will require consultation with the Merritt Parkway Conservancy.

#### Bridge #00717 Silvermine Avenue

Bridge #00717 is a single span concrete rigid frame structure. It features an open baluster at its parapets and stepped pylons and endblocks (Image 11). There are minor spalls to the parapets that will be repaired under this project. On the interior face of the parapet is a cast stone state seal which is in fair condition. However, it exhibits rust stains from exposed metal attachments (Image 12). These attachments will be cleaned, treated with corrosion resistant coatings and patched.

#### Bridge #00718 Route 15 over Silvermine River

Bridge #00718 was constructed in 1958 to replace the original Parkway bridge that was destroyed by flooding. Bridge #00718 is comprised of a steel girder and concrete superstructure supported on reinforced concrete substructure (Image 13). Bridge #00718 is a non-contributing element of the Merritt Parkway. Work proposed for this structure is limited to replacing the existing metal beam rail that separates opposing directions of traffic with a Merritt Parkway median barrier.

#### Bridge #00719, Route 15 over Perry Avenue

Bridge #00719 is a single span concrete rigid frame bridge with an open baluster concrete parapet. It was recently rehabilitated and requires minimal work at this time. This project proposes to apply a color blending sealant to repairs that were installed under the previous project. The sealant will be used to blend the new patches with the surrounding original concrete (Image 14).

#### Bridge #00720, Railroad over Route 15

*Bridge #00720 is an abandoned railroad overpass that was recently rehabilitated by CTDOT for use as a bike/multi-use trail cross. It is excluded from this project.*

#### Bridge #00721, Route 15 over the Norwalk River

*Bridge is a triple bore concrete culvert that was installed in 1938 and rehabilitated in 1988. The project does not include any work on this structure.*

#### Bridges #00530A & 00530B, Main Street

*These bridges are being part of the Route 15 / Route 7 Interchange and are being addressed under State Project #102-358. They are excluded from this project.*

### Bridge #00722 West Rocks Road

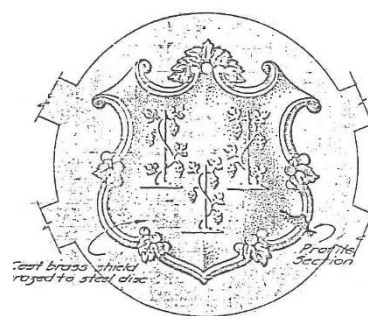
*The bridge is currently being rehabilitated under State Project #102-356 and is excluded from this scope of work.*

### Bridge #00723 East Rocks Road

The bridge is single span, rigid frame concrete structure that features Art Deco detailing including fluted ziggurat shaped pylons, precast sunburst ornaments. Cast stone state seals are installed in center of each fascia. The bridge underwent repairs in 2008, at which time a pedestrian fencing added. Minimal repairs are anticipated for this bridge. The existing median barrier that separates opposing directions of traffic will be replaced with a Merritt Parkway median barrier.

### Bridge #00724 Grumman Avenue

The bridge is a single span, concrete rigid frame structure that carries Grumman Avenue over Route 15. Detailed in Moderne decoration with rectangular, stepped pylons (Image 15). Bridge features precast 'sgraffito' style panels set in upper portion of pylons depicting gryphons (Image 16). Abutment walls feature triangular pattern above coffered panels.



**Drawing of bronze shield decoration.**

The parapets consists of open metal grill panels set between steel posts. Each of the circles in the panels originally features brass shields, all of which are now missing. The metal railing panels exhibit corrosion and will need both repainting and repair.

### Bridge #03218 (Culvert)

*The bridge is a single bore concrete box culvert. It is excluded from the current scope of work.*

### Bridge #00725 Route 53 (Chestnut Hill Road)

The bridge is single span barrel arch structure with classical detailing. This bridge has been recently repaired; however some of the patches applied are not a good visual match to the surrounding original concrete (Image 17). Under this project, a color matched stain will be applied to blend the recent patches.

### Median Tree Removal

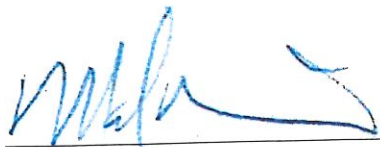
Throughout the 6-mile segment of the project area, the opposing lanes of traffic are separated by a median (Image 18). In some areas, the median is only wide enough to accommodate a metal beam guiderail. The majority of the project features a median that includes a verge of grass of mature trees. There are approximately 100 trees in the median within the project area.

Although the project design has not yet addressed the extent of tree pruning and/or removal, it is expected that some will be required under this project. The issue of managing trees along the Merritt Parkway has come under discussion between CTDOT and other stakeholders recently. Although not resolved, steps have been taken to objectively assess the health and viability of median trees to determine whether they should be removed or not. Other issues such as creating a naturalistic clear zone on the shoulders of the road have been developed in collaboration with the Merritt Parkway Conservancy and CTDOT.

The Office of Environmental Planning has provided the following recommendations for the work to supplement the Standards and Guidelines outlined in the introduction of this document:

- Design changes, such as the installation of pedestrian fencing, should be presented to the Merritt Parkway Conservancy for their consideration and input. As with previous Merritt Parkway projects, an on-going consultation with the Merritt Parkway Conservancy is recommended throughout design and construction.
- Metal Restoration: Several of the bridges feature metal structural and decorative elements. The Grumman Avenue overpass (Bridge #00724) will require repair to corroded elements of its parapet panels. Consider replicating/reinstalling the missing bronze ornament to the Grumman Avenue parapets.
- Coatings Testing: Prior to construction, collect paint samples from the steel girders on the New Canaan Avenue (Bridge #00715) and the metal railings on Grumman Avenue (Bridge #00724). The purpose of the samples is to determine the color scheme(s) used on each of the bridges. Given the age of the bridges, there is a high probability that the coatings will contain hazardous materials such as lead. Testing should be conducted prior to disturbing these coatings.
- Coatings Removal: Several of the bridges feature coatings that will require removal. These include removal of previous failing coatings on metal elements, graffiti cover applied to concrete and non-historic coatings that mask the original finish of the bridge. An absorbent media abrasive system, such as that produced by SpongeJet, has been successfully used on other bridges of the Merritt Parkway to remove coatings without damaging the underlying substrate.
- Median Tree Removal: Prior to removing any trees from the median of the project area, retain a certified arborist to determine the health/viability of each tree that is proposed to be removed. Consult with stakeholders such as the Merritt Parkway Conservancy and State Historic Preservation Office prior to finalizing decisions regarding median tree removal.

Assuming these guidelines are incorporated into the project design, the Office of Environmental Planning recommends a determination of No Adverse Effect on Historic Properties in accordance with Section 106 of the National Historic Preservation Act.



Mark McMillan  
National Register Specialist  
Office of Environmental Planning  
Connecticut Department of Transportation

**SHPO Use Only**

Based on the information provided to the State Historic Preservation Office, we:



Concur



Do Not Concur *(additional comments attached)*

with CTDOT's Office of Environmental Planning's opinion that  
State Project #102-296 in New Canaan / Norwalk / Westport will cause:

**No Adverse Effect to Historic Properties**



Catherine Labadia  
Deputy State Historic Preservation Officer

8/27/19

Date



Department of Economic and  
Community Development

**Connecticut**  
still revolutionary





Image 1: Lapham Avenue underpass (Bridge #05810) after being struck by a truck in October, 2013.



Image 2: West face of Bridge #00712 (South Avenue over Merritt). The inset detail shows the original cast stone state seal and sunburst decorations that were removed during the 1997 rehabilitation. The recreated seal and sunburst will be installed in the center of fascia (location outlined in red).





Image 3: White Shade Oak underpass (Bridge #00713)



Image 4: Bridge 05811 – Marvin Ridge Road over Route 15.





**Image 5: Joints (outlined in red) to be cleaned and sealed on Bridge #05811.**



**Image 6: Bridge #00715 – Route 15 over New Canaan Avenue. The outer 2 girders were added in 1994 when the bridge was widened.**





Image 7: Bridge #00716, Comstock Hill Road.



Image 8: Detail of cast stone figures set into the wing walls of Bridge #00716.





Image 9: Detail of cracking, rust stains, and efflorescence on fascia of Bridge #00716.



Image 10: Detail of graffiti cover applied to Bridge #00716, Comstock Hill Road.





Image 11: Solid concrete parapet and steel guiderail was installed as part of the 1990 rehabilitation. On the outer three spans, a reinforced concrete girder replaced the original stepped fascia seen in Image 4.



Image 12: Cast stone state seal on the interior face of the parapet of Bridge #00717. The seal is stained by exposed metal attachments that are corroding.





**Image 13: Bridge #00718 – Route 15 over the Silvermine River. This bridge was constructed in 1958 to replace the original Merritt Parkway bridge that had been destroyed by a flood.**



**Image 14: Detail of previous repairs to Bridge #00719 (Perry Avenue overpass). These patches will be treated with a color matched sealant to bring their appearance closer to that of the surrounding original concrete.**





Image 15: Bridge #00724, Grumman Avenue underpass.



Image 16: Detail of “sgraffito” cast stone panels on Bridge #00724.





**Image 17: Patches on Bridge #00724 (Chestnut Hill Road overpass).** A color matched sealant will be applied to these repairs to blend them with the surrounding original concrete.



**Image 18: Median trees on near mile mark 16.2.** Trees along the Parkway and in the median are part of the planned landscape design of the Merritt Parkway.

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 5: THPO Coordination**





U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Connecticut Division**

Corrected September 9, 2019  
September 6, 2019

628-2 Hebron Avenue  
Suite 303  
Glastonbury, CT 06033  
860-659-6703  
860-659-6724  
Connecticut.FHWA@dot.gov

In Reply Refer To:  
HDA-CT

Dear CTDOT Cultural Resources Unit:

The Federal Highway Administration (FHWA) has conducted and concluded tribal consultation for transportation undertakings, as requested by your office. On 6 August 2019, FHWA electronically delivered information about applicable undertakings to Federally recognized Indian tribes who have an identified area of interest in the project area.

*We did not receive any comments.*

**The following undertakings have undergone tribal consultation:**

State Project Number	Description	Summary Comments Received from Tribe(s)
0043-0132	<i>Bridge #02166 Rehabilitation (East Haven &amp; New Haven, New Haven County)</i>	No comments
0102-0296	<i>Merritt Parkway Safety Improvements - South Avenue to Newtown Turnpike (New Caanan, Norwalk, Westport, Trumbull, Fairfield County)</i>	No comments
0158-0215	<i>Route 1 Operational Lanes Improvements (Westport, Fairfield County)</i>	No comments
0082-0322	<i>Closure of Miller Street Access to Route 9 (Middletown, Middlesex County)</i>	No comments

With this letter, Tribal consultation is concluded for the undertakings identified herein. Please work with our office to resolve any substantive comments provided by Tribes. FHWA appreciates your continued cooperation in tracking Tribal consultation outcomes and your assistance in ensuring that commitments made to Tribes are met. If you have any questions, please contact me telephone at 860-494-7577 or by email at [emilie.holland@dot.gov](mailto:emilie.holland@dot.gov).

Sincerely,

**M EMILIE  
HOLLAND**

M. Emilie Holland  
Environmental Protection Specialist  
FHWA Connecticut Division

Digitally signed by M EMILIE  
HOLLAND  
Date: 2019.09.09 12:24:44  
-04'00'

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 6: USWFS Verification Letter: Programmatic Biological Opinion on Final 4(d) Rule for  
the Northern Long-eared Bat and Activities Excepted from Take Prohibitions**



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>



In Reply Refer To:

May 21, 2020

Consultation Code: 05E1NE00-2020-TA-2656

Event Code: 05E1NE00-2020-E-08041

Project Name: CTDOT 0102-0368

Subject: Verification letter for the 'CTDOT 0102-0368' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Michael Salter:

The U.S. Fish and Wildlife Service (Service) received on May 21, 2020 your effects determination for the 'CTDOT 0102-0368' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"<sup>[1]</sup> prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

---

**Action Description**

You provided to IPaC the following name and description for the subject Action.

**1. Name**

CTDOT 0102-0368

**2. Description**

The following description was provided for the project 'CTDOT 0102-0368':

CT DOT Project No. 0102-0368 involves Merritt Parkway (Route 15) safety improvements, resurfacing, enhancements and bridge improvements from Route 15 over Main Avenue in Norwalk to Route 15 over Newtown Turnpike in Westport. Additionally, the deceleration lane for the Route 15 Southbound Exit 40B will be extended approximately 1,010 feet. Extension of the deceleration lane requires extension of an existing 4' x 4' box culvert carrying an unnamed brook under Route 15.

This project has been initiated by the Connecticut Department of Transportation (Department) as part of a corridor improvement effort to provide safety improvements and enhancements to the Merritt Parkway, while maintaining its unique character and aesthetics. This is the 8th and final project in a series of 8 corridor improvement projects on the Merritt Parkway. With completion of this project 100% of the Parkway will be upgraded.

This project involves resurfacing Route 15 in both directions as well as providing various safety improvements and aesthetic enhancements. All work would conform to the "Merritt Parkway Guidelines for General Maintenance and Transportation Improvements" recommendations, prepared by the Merritt Parkway Working Group in June 1994. In addition, the project will rehabilitate and restore historic bridge structures in accordance with the "Merritt Parkway Bridge Restoration Guide" dated May 2002.

Roadway improvements include the following: widening the existing shoulders to 8-feet (4-foot paved shoulder and 4-foot reinforced grass shoulder); replacing the existing variety of guiderail with Merritt Parkway Guide Rail (steel backed timber railing); correcting existing cross slopes of the roadway to meet standards; removing rock ledges and other fixed objects within the recommended clear zone or protecting it with Merritt Parkway Guide Rail or Merritt Parkway Concrete Barrier; installing a slip lined concrete curb and gutter system along the median for drainage and delineation purposes; limited full-depth pavement replacement under bridges and patching of other deteriorated areas; resurfacing of the roadway; installing new drainage; installing Merritt Parkway Median Barrier in areas where the width of the roadway is limited.

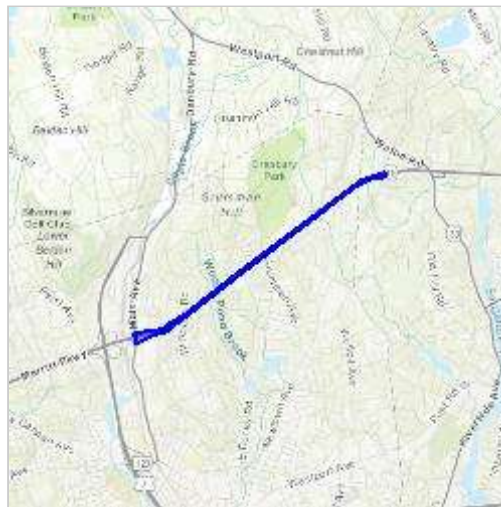
---

The bridges within the project limits will require minor cosmetic work (various parapet work, graffiti removal, surface and crack repairs to concrete, fencing, overlay, etc). Some bridges may require major work including removing the material on top of the bridge to expose the concrete arch or frame; repairing any deteriorated sections; applying a waterproofing membrane; re-establishing the roadway to its original profile; performing any necessary underside repairs; and finally cleaning the bridge.

Additionally the existing Route 15 Southbound Exit 40B deceleration lane will be extended from 260 feet to 1,270 feet. In order to extend the deceleration lane, an existing 4-foot by 4-foot box culvert carrying an unnamed watercourse below Route 15 will need to be extended. The box culvert will be extended at the inlet approximately 18 feet to the north in order to accommodate the proposed slopes for the deceleration lane.

The project is scheduled to start construction in spring 2021 and is scheduled to take two construction seasons.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.152710495205454N73.40482237316763W>



### Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR

§17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

**Determination Key Description: Northern Long-eared Bat 4(d) Rule**

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

---

## Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

## Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?  
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")  
No
3. Will your activity purposefully **Take** northern long-eared bats?  
No
4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?  
**Automatically answered**  
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at [www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html](http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html).

Yes

---



6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

*No*

7. Will the action involve Tree Removal?

*Yes*

8. Will the action only remove hazardous trees for the protection of human life or property?

*No*

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

*No*

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

*No*

---

## Project Questionnaire

**If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.**

1. Estimated total acres of forest conversion:

2.7

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

**If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.**

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

**If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.**

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

**If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.**

---

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

USACE Self-Verification From, GP 18 & GP 19

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 7: Interagency Coordination Meeting Notes**

# Interagency Meeting Notes

February 20, 2020

Room 2215

## January 16, 2020 Interagency Meeting Notes

- USACE staff provided clarification on the decision made during the municipal project portion of January's interagency meeting. A PCN was determined as needed for one of the projects presented that proposed to replace an existing bridge with a culvert. USACE staff indicated that replacing an open bottom structure with a closed bottom structure is considered a new installation and subject to a PCN. Replacing a culvert for a culvert would not be considered a new installation. USACE staff clarified that closed bottom culverts for drainage areas of less than one square mile are eligible for SV.
- There was a staff discussion among DOT/DEEP/USACE regarding whether all of the "automatic 401" criteria in USACE GP19 had to be met in order for any given project to be eligible for authorization via Self Verification. The discussion referred to the following language in 401 GP19 Table 1: Self-Verification column: "Granted for stream, river or brook crossings that receive **written approval** from the Connecticut Department of Energy and Environmental Protection (CT DEEP) through a formal cooperative state interagency screening process jointly conducted by the Connecticut Department of Transportation (CT DOT) and CT DEEP." It was agreed that when there is a consensus at the ICM to allow an SV without meeting all the criteria, that the ICM notes, which are distributed, reviewed, and approved by DOT, DEEP, and USACE, should be considered as the "written approval" necessary for a project to be confirmed as eligible for a SV. USACE added that the notes should be very clear documenting the discussion and the decision made.
- There were no other comments on the January 16<sup>th</sup> Interagency Meeting notes. The notes are considered accepted.

## Project 102-368, Merritt Parkway Safety Improvement Project, Towns of Norwalk, and Westport

This project involves resurfacing Route 15 in both directions and providing various safety improvements and enhancements. Roadway improvements include the following: widening the existing shoulders to 8-feet (4-foot paved shoulder and 4-foot reinforced grass shoulder); replacing the existing guiderail; correcting existing cross slopes of the roadway to meet standards; removing rock ledges and other fixed objects within the recommended clear zone; installing a concrete curb and gutter system along the median; limited full-depth pavement replacement under overpasses, pavement patching; resurfacing of the roadway; installing new drainage.

Drainage maintenance impacting wetlands will be conducted as needed at up to four (4) drainage pipe inlets and outlets. Activities may include the following: excavation of accumulated sediment, brush, or debris from within 50 feet (max) of the inlet or outlet; cleaning or reshaping the man-made drainage ways; installation or repair of drainage endwalls; repair of erosion damage. Drainage outlet work will be within the FEMA 100-year floodplain.

The project also includes the extension of the existing 40B off ramp from Route 15 SB to Creeping Hemlock Drive in Norwalk to allow for a greater deceleration distance. The lane extension will involve extension of an existing 48-inch box culvert conveying an unnamed watercourse and the associated water handling. Natural streambed material will be installed in the culvert extension. Drainage area of 114 acres. Construction start date in Spring of 2021 for 2 seasons.

## **Project 102-368, (continued)**

### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	323	595	918
Temporary	372	225	597
Total	695	820	1,515

### **Agency Comments:**

- USACE asked if the culvert extension is still following the natural channel. The design engineer confirmed as such.
- CTDEEP LWRD asked what was the length of the extension and if the invert was being modified. The design engineers reported that the extension was approximately 20-25', compared to the length of existing culvert which is approximately 200'. The invert elevation is being modified so that the extension matches the slope of the existing culvert.
- CTDEEP LWRD asked if proposed culvert extension will allow for a full 12 inches of natural stream bed material. The design team clarified that the extension will match existing elevations of the culvert and the natural streambed. Natural streambed material will be used to restore any disturbed sections of the streambed.
- CTDEEP LWRD asked if the culvert passes the 50-year storm. DOT Hydraulics & Drainage confirmed as such.
- CTDEEP LWRD asked if NDDDB coordination has been completed. DOT OEP confirmed that an NDDDB Determination Letter was received (Box Turtle identified) and that the documentation will accompany the permit application.
- DEEP Fisheries stated there were no concerns and the only restriction is unconfined in-water work should be restricted to June 1 through September 30.
- The design engineers stated that the culvert work is proposed to be performed during the dry season and should take approximately 1 month. Pumping for the work was discussed and is allowed for the culvert work.

**Permitting Requirements:** Flood Management General Certification, USACE SV (GP 19), CTDEEP IWGP

**Action Items:** Finalize design and provide OEP with permit plans for DEEP Fisheries sign-off and submit permit plans to EPC for preliminary review. OEP to prepare permit applications and submit to respective agencies.

**Project 40-146, Replacement of Bridge No. 02510, Route 82 over Strongs Brook in East Haddam**

Bridge No. 02510 was built in 1924 and consists of a single span reinforced concrete slab with integral concrete abutments. ADT is 3100 vehicles. The bridge has a 12-foot open span, a 30 foot 6 inch out-to-out width, and a 28-degree skew. Both the superstructure and substructure are rated “Poor” (4) due to large areas of spalls and scaling, and the bridge’s downstream parapet lacks appropriate safety protection (e.g., metal beam rail or impact attenuation system) due to a driveway encroachment. The proposed replacement is a 16-foot wide by 6.5-foot high box culvert that relocates the crossing approximately 40’ west of its current location. Streamflow through the existing structure will be maintained during construction. Due to construction sequencing, streambed material from the existing channel will not be able to be reused in the new culvert. Construction start date in April of 2022 for 1 season.

**Project Impacts:**

Wetland & Watercourse Impacts (coincident Federal and state)

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	833	3620	4453
Temporary	0	0	0
Total	833	3620	4453

**Agency Comments:**

- CTDEEP LWRD asked about NDDDB coordination. The project area does not have any mapped species or habitats of concern. NDDDB areas are mapped within ¼-mile. NDDDB coordination would only be necessary if the project disturbed more than one acre and required registration under the current Construction Stormwater General Permit.
- CTDEEP Fisheries requested that a low-flow channel be constructed in the culvert. DEEP Fisheries requested that the reuse of existing stream channel material in the new culvert be reconsidered or that additional fine materials be added into the supplemental stream channel material in order to address site specific requirements.
- USACE staff asked if the structure passes the 50year storm. CTDOT Hydraulics & Drainage indicated the box culvert will pass the 50-year storms without under-clearance, which is not required for culvert design per the Drainage Manual.
- USACE staff asked why a larger structure or bridge was not proposed. A larger structure would require either a raised roadway, which would involve grading slopes that would further impinge into the nearby watercourse, or a wider span, which would locate the outlet further downstream from Fisheries’ recommended connection point to the existing channel. CTDEEP Fisheries requests to preserve the braided stream near the proposed outlet as much as possible and a larger bridge would further encroach on that location.
- USACE staff asked if the existing structure was historic. OEP reported the project will be screened for Section 106 compliance.

## Interagency Meeting Notes DRAFT

February 20, 2020

Room 2215

### **Project 40-146 (continued)**

- CTDEEP LWRD asked what will be the slope. The design engineers reported that the existing stream coming into the location is 3%. The proposed culvert will be nearly flat and match into the braided stream at the outlet.

**Permitting Requirements:** USACE PCN GP19, 401 WQC via CTDEEP Addendum, DEEP IWGP

**Action Items:** Finalize design and provide OEP with permit plans incorporating CTDEEP Fisheries comments and submit permit plans to EPC for preliminary review. OEP to prepare permit applications and submit to respective agencies.

### **Project 135-332, Replacement of Bridge No. 04067, Cedar Heights Road over the Rippowam River in Stamford**

Bridge No. 04067 is a single-span structure situated on Cedar Heights Road over Rippowam River in the City of Stamford. The bridge, constructed in 1933, consists of a reinforced concrete deck superstructure supported by stone masonry abutments and wingwalls. The bridge has a 24-foot long span, and a 34-foot 1-inch out-to-out width. ADT is 3229 vehicles. An existing cast-in-place concrete invert slab is present between the abutments on the channel bed for scour protection and extends approximately 14 feet downstream of the bridge. Bridge No. 04067 is considered structurally deficient. Roadway overtops during 10-year storm event. Drainage area of 29.2 sq. miles.

The proposed replacement structure consists of a 42.5-foot clear span and a minimum out-to-out width of 43.83 feet. Hydraulic opening increasing from 158 sf to 335 sf. The superstructure will be supported by reinforced concrete abutments on spread footings, founded on competent bedrock. Temporary bypass pipes will be utilized in two stages in order to remove the existing cast-in-place invert slab and existing abutments. A temporary cofferdam will be utilized in the third stage to construct the proposed abutments. Bank-full width is identified as 60 feet. The proposed structure allows for continuous flow of the 50-year storm. Activity will cause adverse effect to historic property.

Initial Fisheries comments were received on 8/13/2013, and Fisheries has been provided with the latest plan set. No NDDB concerns.

#### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	400	1,900	2,300
Temporary	600	2,050	2,650
Total	1,000	3,950	4,950

Floodway Impacts: 460 CY cut; 170 CY fill

#### **Agency Comments:**

- DEEP LWRD staff asked if the project would require a CLOMR or LOMR. DOT Hydraulic & Drainage indicated that the project does not increase water surface elevations and therefore does not trigger either from FEMA.



## Interagency Meeting Notes DRAFT

February 20, 2020

Room 2215

### **Project 135-332 (continued)**

- DOT Engineering stated that it was recently determined that the project will result in an adverse effect to a historic structure. An MOA has been executed for the project.
- DEEP Fisheries requested that a low flow channel be installed below the structure due to the water depths anticipated and concerns about fish passage during low flows. Unconfined instream work limited to June 1 through September 30.

**Permitting Requirements:** FMC-MOU, USACE PCN GP19, 401 WQC via DEEP Addendum, Local Inland Wetlands. Historic property being affected (USACE 404- Appendix B- 9. Historic Properties)

**Action Items:** Finalize design and provide OEP with permit plans incorporating DEEP Fisheries comments. Town/Consultant to prepare permit applications and submit to respective agencies. FM-MOU to be submitted to DOT for review and approval.

### **Project 131-206, Replacement of Bridge No. 04562, Spring Street over Quinnipiac River in Southington**

**Project Description:** Bridge No. 04562 is a single span structure located on Spring Street that travels over the Quinnipiac River in Southington. Bridge No. 04562 is considered structurally deficient. The bridge, built in 1960, consists of steel rolled beams with a reinforced concrete deck. The bridge has a clear span length and out-to-out width of 37 feet and 45.5 feet, respectively. ADT of 3982 vehicles. Drainage area of 13.6 sq. miles. No NDDB concerns.

The proposed replacement consists of galvanized steel beams and reinforced concrete superstructure on integral reinforced concrete abutments supported by steel piles. The structure will have a clear span length of 70 feet and an out-to-out width of 43.67 feet. The proposed project will remove the superstructure, cut and cap existing abutments, build new abutments behind existing, and extend the sewer/gas mains. There are no temporary water handling cofferdams required for this project. The roadway overtops at the 100 year storm. There will be minimal change to the profile of the existing roadway due to the Town's preference to maintain a gravity sewer at this location. One drainage outlet will be relocated its current position due to conflict with the proposed structure construction. The new drainage outlet will be north (upstream) of the existing bridge and will require a splash pad. Construction start date in Spring of 2021 for 1.5 seasons.

#### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
Permanent	100	0	100
Temporary	370	2080	2450
Total	470	2080	2550

Floodway Impacts: 585 CY cut; 45 CY fill

## **Interagency Meeting Notes DRAFT**

**February 20, 2020**

**Room 2215**

### **Project 131-206 (continued)**

#### **Agency Comments:**

- USACE asked about the timing of the unconfined instream work. DEEP Fisheries indicated no in-water work during the period April 1 to June 30 and any “unconfined” in-water work is allowed July 1 to September 30. Fisheries comments received noted presence of a number of diadromous species.
- USACE requested plan view of utility work. The design engineer reported that utility relocations were to be done separately from this project by the utility company.
- USACE asked about the amount of in-water work below ordinary high water, and requested that impacts to federal wetlands and impacts to the watercourse be shown separate and distinctly on the project plans. The designer explained that the need to install debris shielding under the bridge and that impacts are a result of using ladders or scaffolding for the installation; temporary watercourse impacts were accounted for as such. Temporary impacts shown below ordinary high water at the location of the proposed drainage outlet were associated with proposed riprap within the state wetland limits. Drainage outlet construction will likely necessitate cofferdam installation within a federally regulated area and should be shown and accounted for as such. It was recommended that the design and permits account for the space the contractor will need to perform the outlet construction.
- DOT H&D requested confirmation that existing abutments that are to remain in place have been evaluated for scour concerns. The design engineer confirmed as such.

**Permitting Requirements:** FMC-MOU, USACE SV GP 19, Local Inland Wetlands

**Action Items:** Finalize design in consideration of agency comments on impact areas below bridge and around the outlet. Town/Consultant to prepare permit applications and submit to respective agencies. FM-MOU to be submitted to DOT for review and approval.

### **Project 10-89, Preservation of Bridge No. 05169, Wood Creek Road over Weekeepeemee River in Bethlehem and Bridge No. 05956, Magnolia Hill Road over East Spring Brook in Bethlehem**

The purpose of this project is to implement systematic preventative maintenance repairs as a way to extend the service life of the bridges. No NDDB concerns.

**Bridge No. 05169** is a single-span structure over Weekeepeemee River, situated on Wood Creek Road. Bridge No. 05169, built in 1956, consists of a steel multi-girder superstructure with a reinforced concrete deck supported by reinforced concrete abutments. The bridge has a clear span length and out-to-out width of 33 feet and 25.6 feet, respectively. ADT is approximately 365 vehicles per day. The proposed preservation work is to clean and paint the existing beams and fixed bearings, and replace the existing expansion bearings with elastomeric bearing pads. New bridge rail and guide rail will be installed along with new membrane waterproofing and bituminous concrete wearing surface. The existing concrete deck and substructure will be patched as necessary. Containment measures to be used for lead paint. Drainage area of 3.3 sq. miles. (Separate drainage project being done by the Town. Both projects will be constructed concurrently.)

## Interagency Meeting Notes DRAFT

February 20, 2020

Room 2215

### **Project 10-89 (continued)**

**Bridge No. 05956** is a single-span structure over East Spring Brook, situated on Magnolia Hill. Bridge No. 05956, built in 1955, consists of a cast-in-place slab supported by reinforced concrete abutments. The bridge has a clear span length and out-to-out width of 20 feet and 25 feet, respectively. ADT is approximately 238 vehicles per day. The proposed scope of work will consist of new bridge rail and guide rail along with new membrane waterproofing and bituminous concrete wearing surface. The existing concrete deck and substructure will be patched as necessary. Drainage area of 2.18 sq. miles.

#### **Project Impacts:**

Wetland & Watercourse Impacts (coincident for both state and federal):

	Wetland (SF)	Watercourse (SF)	Total (SF)
<b>Br. 05169</b>			
Permanent	0	0	0
Temporary	0	366	366
<b>Br. 05956</b>			
Permanent	0	0	0
Temporary	0	180	180

**Agency Comments:** USACE and DEEP discussed eligibility for SV for both sites and concurred that both project sites are eligible for SV authorization under GP2 (Maintenance) given the scope of work for this project and since not touching the water or changing the structures.

#### **Permitting Requirements:**

- Bridge 05169: Flood Management General Certification, USACE SV GP2, Local Inland Wetlands
- Bridge 05956: USACE SV GP2, Local Inland Wetlands

**Action Items:** Finalize design. Town/Consultant to prepare permit applications and submit to respective agencies.

General Permit Request for Authorization, Water Resource Construction Activities (Activities 8 & 9)

Applicant: State of Connecticut, Department of Transportation  
Project No. 0102-0368  
Merritt Parkway (Route 15) Safety Improvements, Resurfacing, Enhancements, Bridge  
Improvements & Southbound Exit 40B Deceleration Lane Extension  
Towns of Norwalk & Westport

---

**Attachment 32: CT DOT Flood Management General Certification**

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

m e m o r a n d u m

FLOOD MANAGEMENT GENERAL CERTIFICATION

Project No.: 0102-0296 (0102-0368CN)

Description: Route 15 Safety Improvements, Resurfacing, Enhancements, and Bridge Improvements

Town: City of Norwalk, Town of Westport

Date: March 3, 2020

to: Trans. Principal Engineer  
Hydraulics and Drainage  
Bureau of Engineering and Construction

from: Mr. Michael S. Cherpak  
Trans. Supervising Engineer  
Highway Design  
Bureau of Engineering and Construction

Michael S.  
Cherpak, P.E.  
2020.03.04  
13:53:22-05'00'

Please review this request for Flood Management General Certification and indicate your concurrence below.

**Certification** (to be completed by designer)

*I have read the Flood Management General Certification and the descriptions for the approved DOT minor activities. This project qualifies for the Flood Management General Certification under:*

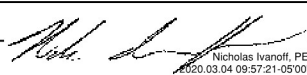
- ( x ) Minor Safety Improvements and Streetscape Projects
- ( ) Roadway Repaving, Maintenance & Underground Utilities
- ( x ) Minor Stormwater Drainage Improvements
- ( x ) Removal of Sediment or Debris from a Floodplain
- ( ) Wetland Restoration Creation or Enhancement
- ( ) Scour Repairs at Structures; *(Must acquire DEEP Fisheries Concurrence to be eligible)*
- ( ) Guide Rail Installation
- ( ) Deck and Superstructure Replacements
- ( ) Minor Bridge Repairs and Access
- ( ) Fisheries Enhancements
- ( ) Surveying and Testing
- ( ) Bicycle / Pedestrian, Multi Use Trails and Enhancement Projects

*The following required documentation is attached in support of this certification:*

- Project description
- Location plan
- Description of Floodplain involvement and how project qualifies for general certification
- 8-1/2" by 11" excerpt copy of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Boundary Map (if applicable)
- Design plans, (dated 2/26/2020) with FEMA floodplain and floodway boundaries plotted.
- FEMA 100-year flood elevation plotted on elevation view (for structures) – **N/A – not provided**

Print Name: Nicholas A. Ivanoff

Signature

  
Nicholas Ivanoff, PE  
2020.03.04 09:57:21-05'00'

Title: Project Engineer

Date

**Concurrence** (to be completed by Hydraulics and Drainage)

Based on the documentation submitted, I hereby concur that the project qualifies for Flood Management General Certification.

***If there are any changes to the proposed activities within the floodplain or floodway, the project must be re-submitted for review and approval.***

Signature



E-Cheng Chen/03/04/2020, Chiu-Cheng Chen, P.E., Chiu-Cheng Chen  
Hydraulics and Drainage, Bureau of Engineering and Construction  
2020.03.04 14:13:24-05'00'

Date

cc: Manager of Bridges      Environmental Planning File      DEEP Flood Management Cert. File  
Hydraulics & Drainage File      Environmental Permit Coordination Unit



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751

17 June 2020

Regulatory Division  
File Number: NAE-2020-01626

Kimberly Lesay  
CT Department of Transportation  
2800 Berlin Turnpike  
Newington, CT 06111

Dear Ms. Lesay:

PROPOSED WORK/LOCATION: Route 15 Safety Improvements, Resurfacing, Enhancements, and Bridge Improvements, Norwalk, CT.

We have reviewed your proposal to perform work within Corps of Engineers jurisdiction. We have assigned this file number **NAE-2020-01626**. Please reference this number in any future correspondence with us.

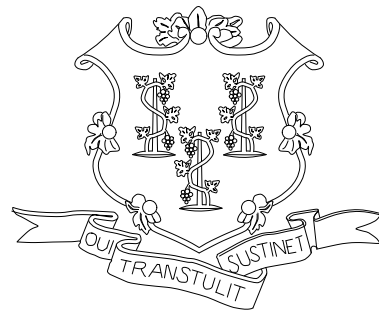
Since your project may have only minimal individual and cumulative impacts on waters and wetlands of the United States, it is authorized by the Corps of Engineers under the Connecticut General Permits (GPs). This authorization does not obviate the need to obtain other federal, state, or local approvals. You are responsible for ensuring that the work meets the terms and conditions of the CT GPs. We have recorded this project as permittee self-verification of the CT GPs in our database.

Please contact me at (978) 318-8703 if you have any questions.

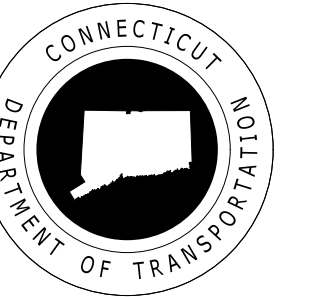
Sincerely,

A handwritten signature in black ink that reads "Kevin R. Kotelly". The signature is written in a cursive style with a large, stylized "K" and "R".

Kevin R. Kotelly, P.E.  
Chief, Permits & Enforcement Branch  
Regulatory Division

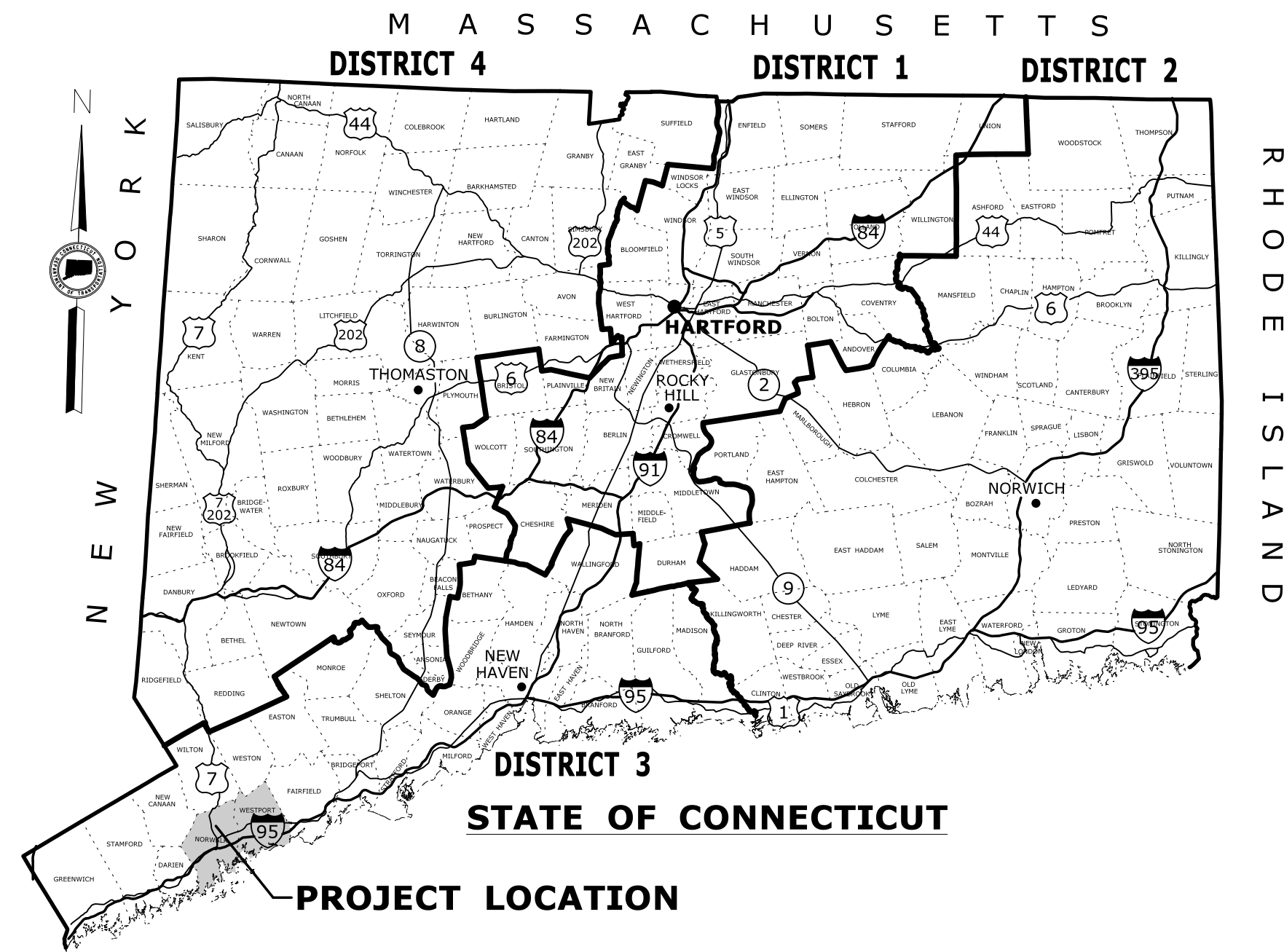


# CONNECTICUT DEPARTMENT OF TRANSPORTATION



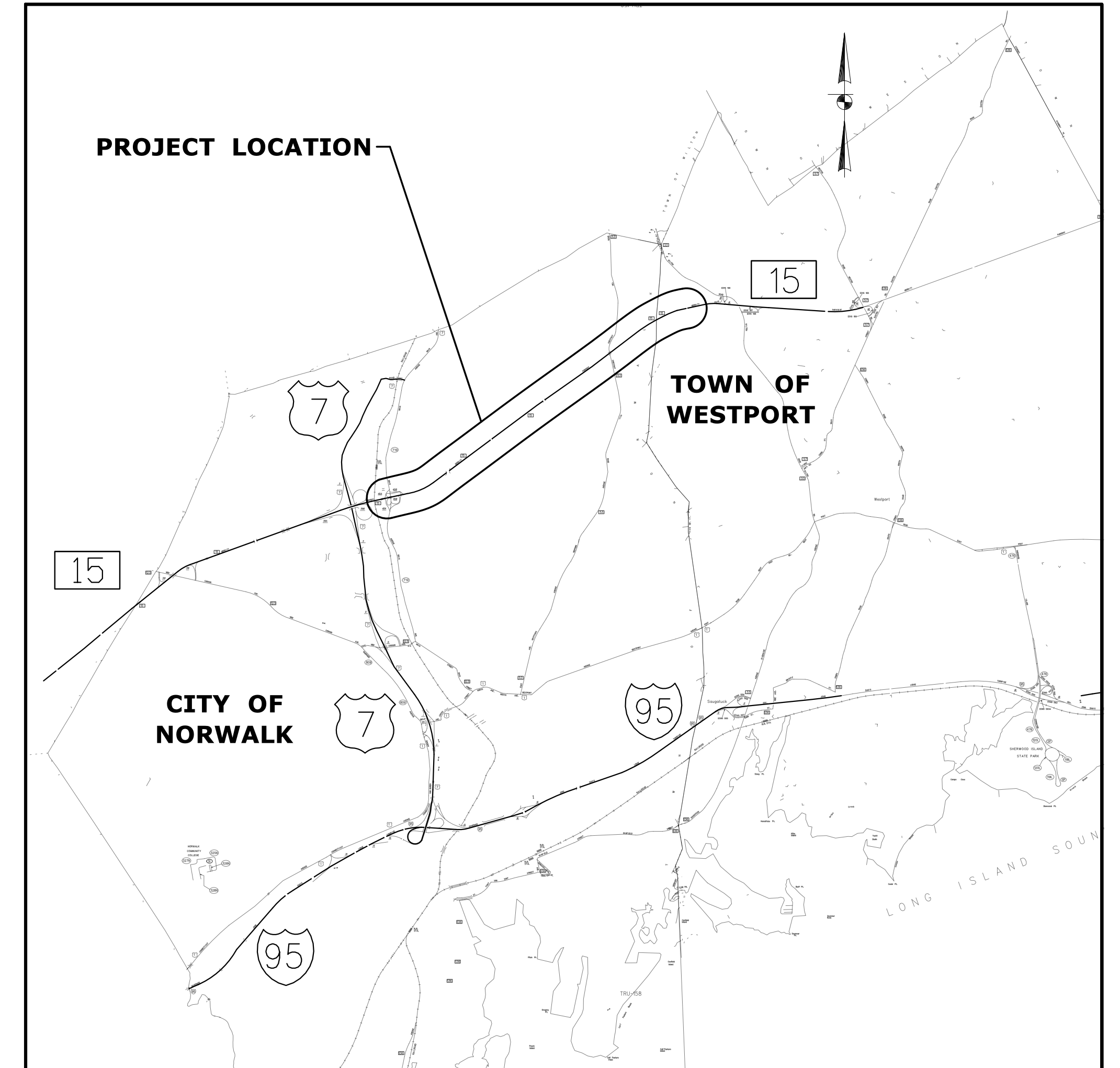
## ENVIRONMENTAL PERMIT PLANS FOR ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS

### CITY AND TOWN of NORWALK AND WESTPORT



ROAD	MAINTENANCE RESPONSIBILITY	LENGTH
Route 15	STATE	2.7 MILES

F.A.P. #	MAINTENANCE RESPONSIBILITY	PROJECT #
0015(104)	STATE	0102-0368



**LOCATION PLAN**  
NOT TO SCALE

#### GENERAL NOTES:

- THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND ACOE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
- FOR A DESCRIPTION OF THE WATERCOURSES, WETLAND AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE APPLICATION.
- 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983  
VERTICAL DATUM BASED ON NAVD OF 1983.
- ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

#### LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02 TO PMT-03	PERMIT PLAN INDEX SHEET
PMT-04	DRAINAGE OUTFALL REHAB DETAILS
PMT-05 TO PMT-07	HIGHWAY PLAN
PMT-08 TO PMT-10	WETLAND/WATERCOURSE IMPACT PLAN
PMT-11	AREA 1 STAGING AND WATER HANDLING PLAN
PMT-12	AREA 1 ELEVATIONS & SECTION

THE DESIGN APPEARS TO CONFORM TO APPLICABLE CRITERIA. APPROVAL IS NOT TO BE CONSTRUED TO MEAN THAT ALL ASPECTS OF THE DESIGN HAVE BEEN PERSONALLY CHECKED BY THE UNDERSIGNED.

SUBMITTED BY: TRANSPORTATION PRINCIPAL ENGINEER - MATTHEW R. VAIL, P.E.

Plans For  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

Town(s)/City  
NORWALK, WESTPORT

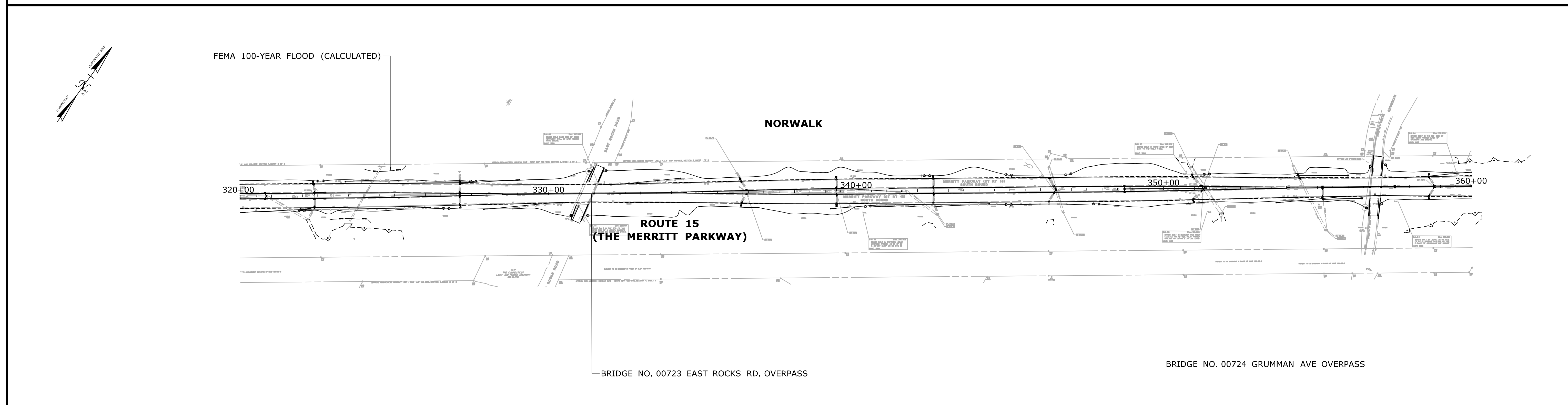
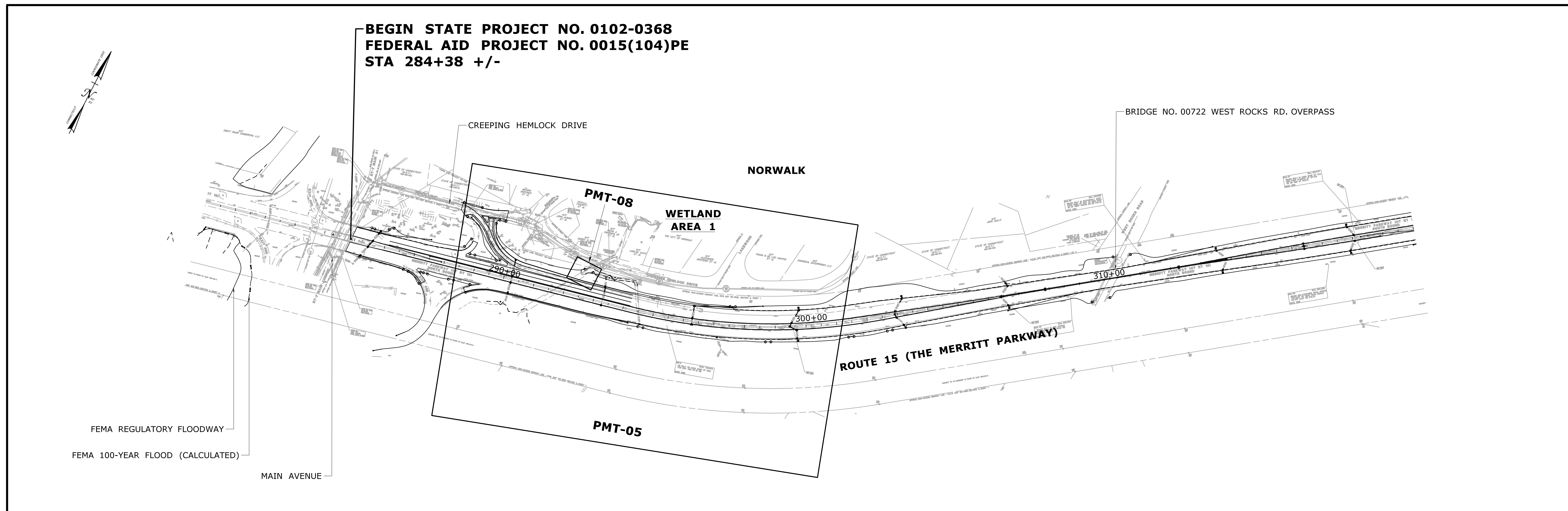
STATE PROJECT NO.

**0102-0368**

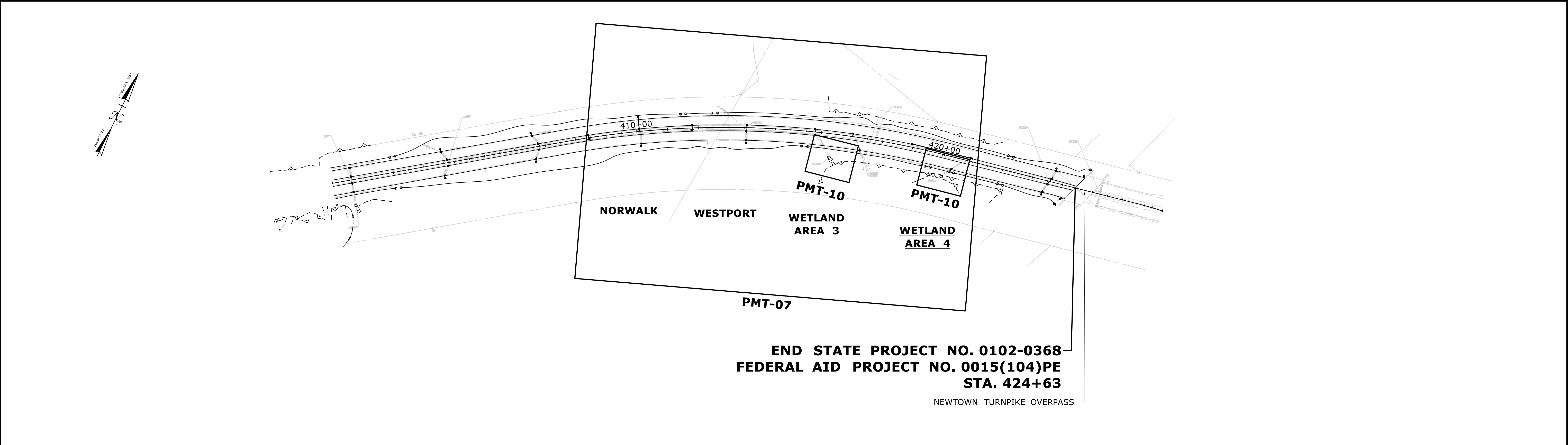
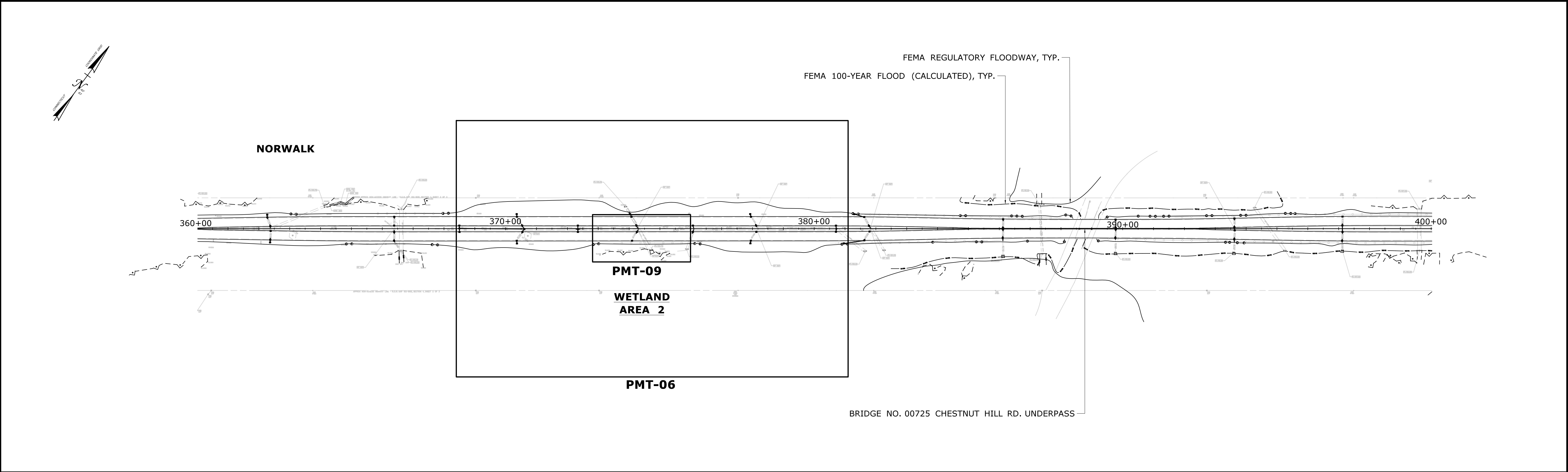
DRAWING NO.

**PMT-01**



SHEET NO.

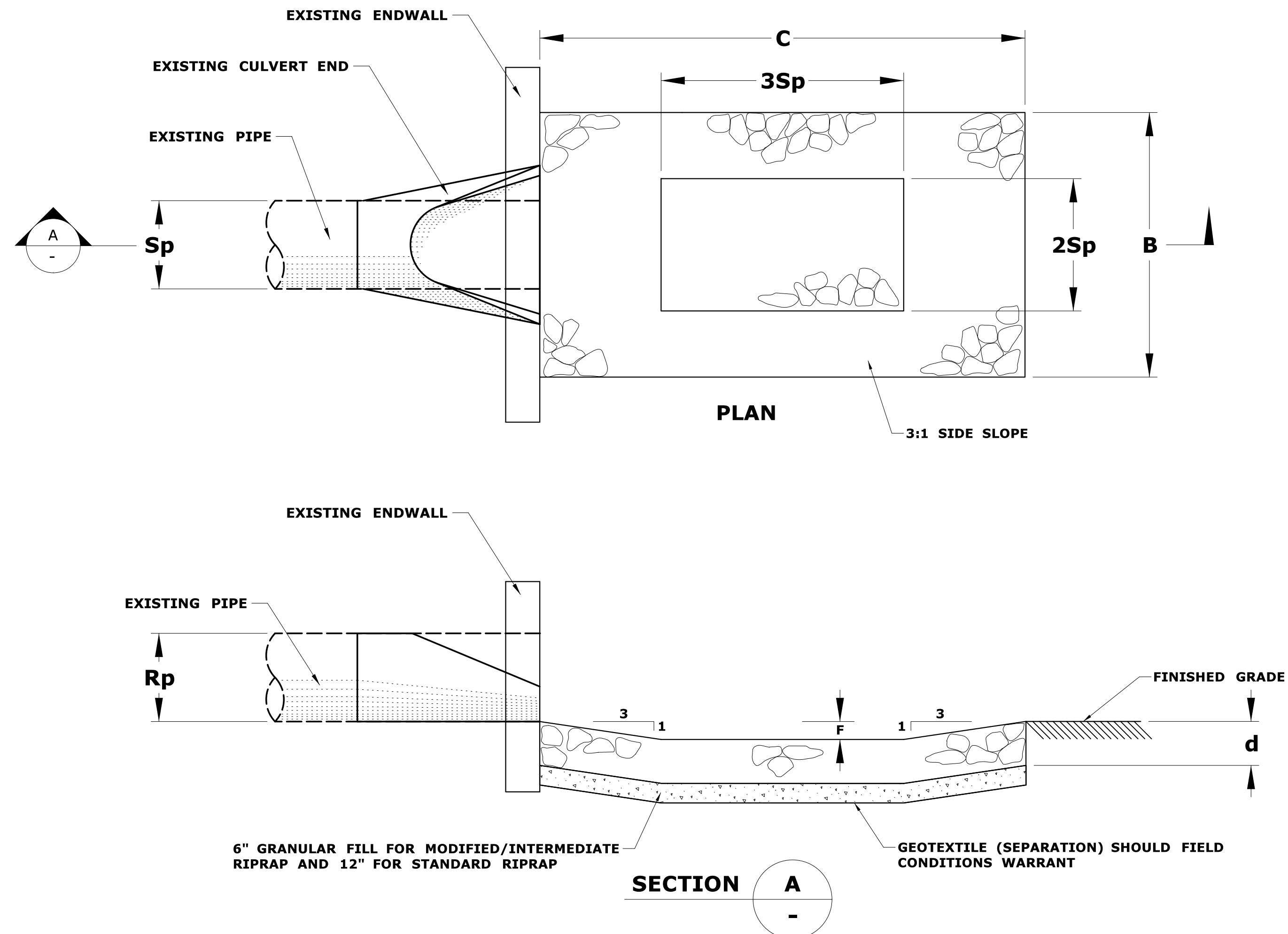
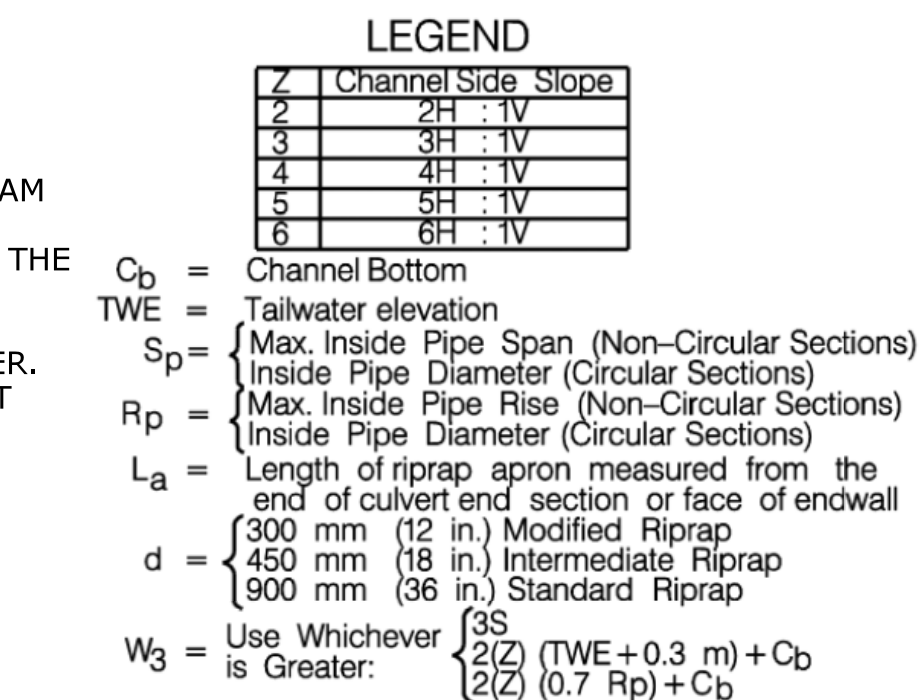
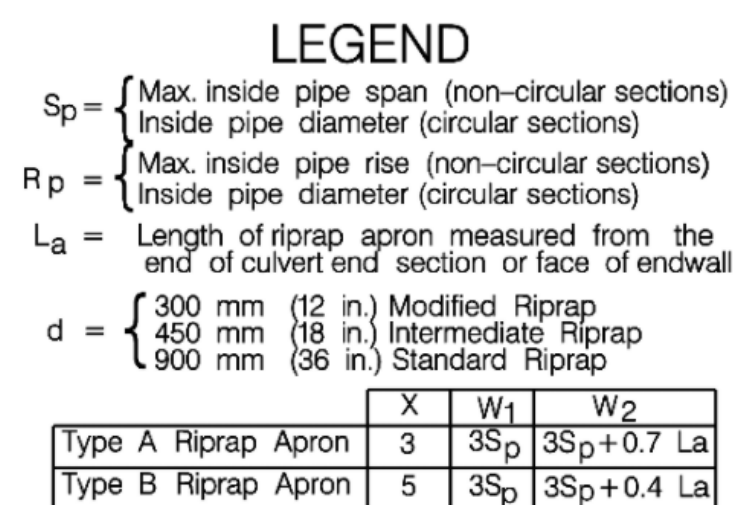
**ENVIRONMENTAL PERMIT PLANS - 05/05/20**[illegible]





ENVIRONMENTAL PERMIT PLANS - 05/05/20

				DESIGNER/DRAFTER: SMT		 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>		SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRDIGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b> DRAWING TITLE: <b>PERMIT PLAN INDEX SHEET</b>	PROJECT NO. <b>0102-0368</b> DRAWING NO. <b>PMT-03</b> SHEET NO.
				CHECKED BY: NAI							
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020		Filename: ...\\HW_MSH_0102-0368_PMT-03.dgn					



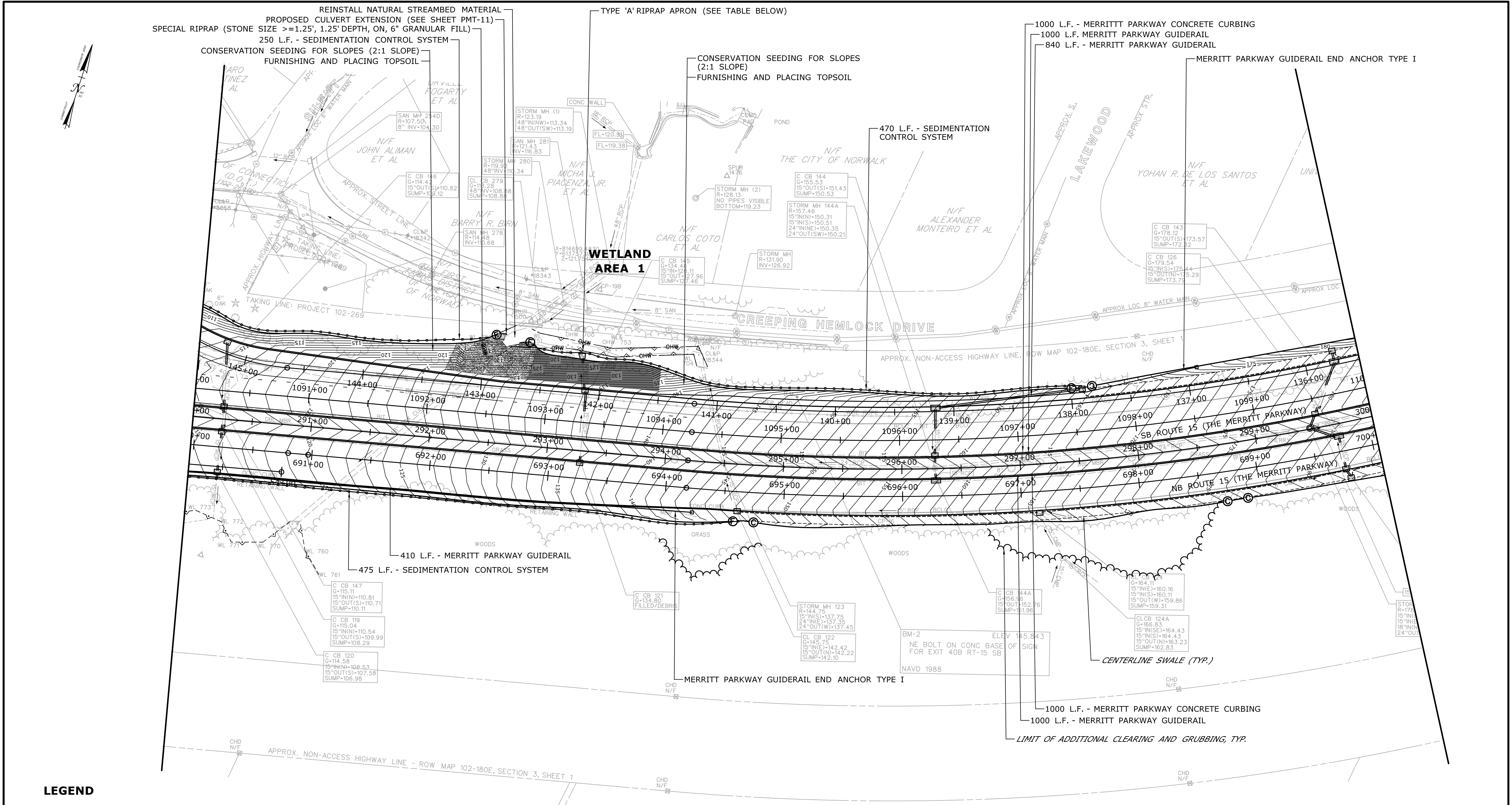
1. SCOUR HOLE TYPE AND RIPRAP SIZE SHALL BE DETERMINED BY THE DISTRICT DRAINAGE ENGINEER.
2. GROUND ELEVATION (FINISHED GRADE) SHALL NOT BE INCREASED.
3. WORK SHALL BE IN ACCORDANCE WITH THE DEEP 2004 STORMWATER QUALITY MANUAL.
4. ALL TEMPORARY WORK SHALL CONFORM WITH THE FLOOD MANAGEMENT GENERAL CERTIFICATION CONSTRAINTS.

- $S_p = \text{Max. inside pipe span (non-circular sections)}$   
 $\text{or Inside pipe diameter (circular sections)}$
- $R_p = \text{Max inside pipe rise (non-circular sections)}$   
 $\text{or Inside pipe diameter (circular sections)}$
- $d = 12" \text{ with Modified Riprap}$   
 $18" \text{ with Intermediate Riprap}$   
 $36" \text{ with Standard Riprap}$
- Scour Hole Type 1:  $F = 0.5 R_p$
- Scour Hole Type 2:  $F = R_p$
- $C = 3S_p + 6F$
- $B = 2S_p + 6F$

1. WHERE NOTED ON PLANS, THE CONTRACTOR SHALL RESTORE DRAINAGE OUTFALLS TO THEIR FULL WORKING ABILITY. THE OUTFALLS SHALL BE CLEAR OF DEBRIS, FULLY CONNECTED, AND EFFECTIVELY HOLDING BACK SOIL SHOULD A HEADWALL STRUCTURE BE PRESENT.
2. DRAINAGE OUTFALL WORK CAN CONSIST OF:
  - i. OUTLET PROTECTION REPAIR (RE-ESTABLISH APRON/SCOUR HOLE).
  - ii. RECONSTRUCTION OF HEADWALLS, IF APPLICABLE.
  - iii. RECONNECTION OF DISCONNECTED OUTLET PIPES.
3. DETERMINATION OF THE EXTENT OF OUTFALL WORK WARRANTED AT EACH OUTFALL SHALL BE DECIDED BY THE ENGINEER.

[illegible]





LEGEND

- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- ORDINARY HIGH WATER
- EROSION CONTROL MATTING (TYPE D)
- RIPRAP FOR OUTLET APRONS/PREFORMED SCOUR HOLES AND SLOPE PROTECTION

OUTLET PROTECTION TABLE

STATION	OFFSET	RIPRAP SIZE	L	W	W	D
293+25	77' LT	STANDARD	5'*	4'	8'	36"

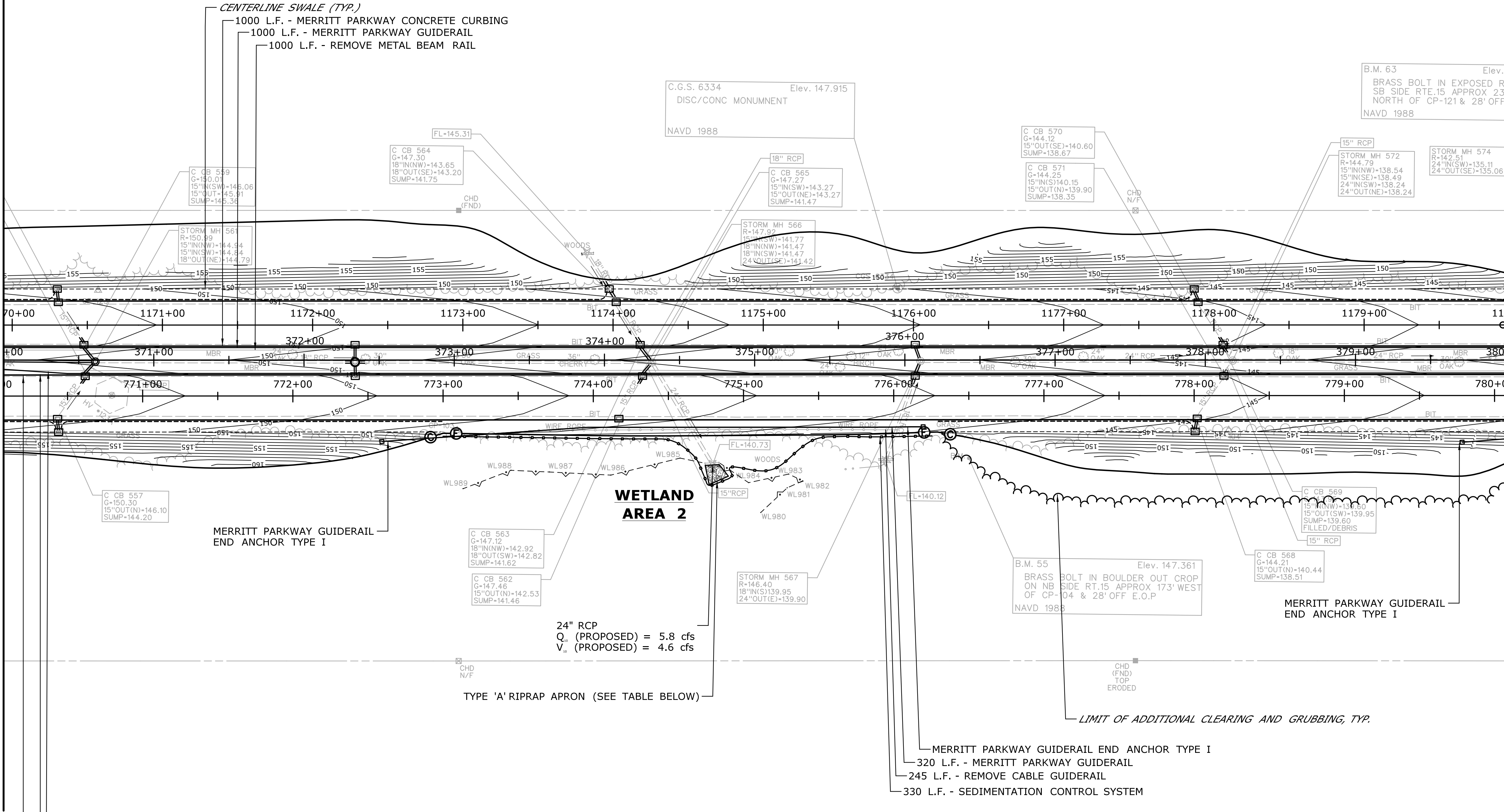
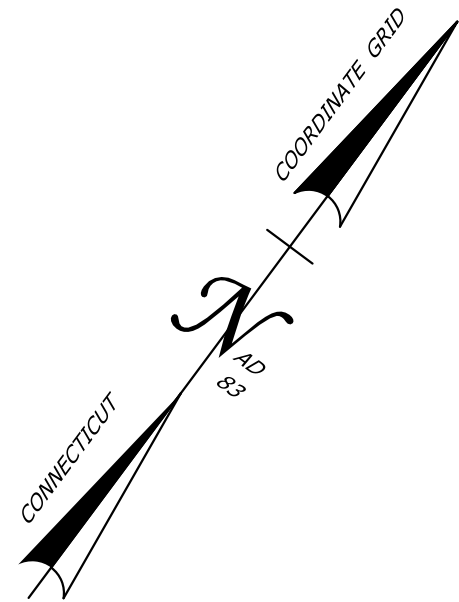
\*DO NOT ENTER WETLANDS

GENERAL NOTES

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES GREATER THAN 2:1 SHALL BE PROTECTED BY EITHER SPECIAL RIPRAP (1.25' DEPTH, ON, 6" GRANULAR BASE) OR EROSION CONTROL MATTING (TYPE D).
- DISTURBED AREAS BELOW THE WETLAND LIMIT SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE SEEDED WITH CONSERVATION SEEDED FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.
- INVASIVE SPECIES CONTROL SHALL BE COMPLETED WITHIN THE PROJECT LIMITS WHEREVER EXISTING GROUND IS BEING DISTURBED.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

DESIGNER/DRAFTER: WJPG		CHECKED BY: NAI		SCALE IN FEET		SCALE 1"=40'	
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		OFFICE OF ENGINEERING		PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	
REV. DATE REVISION DESCRIPTION SHEET NO.		Plotted Date: 5/7/2020		SIGNATURE/BLOCK: OFFICE OF ENGINEERING		TOWN: NORWALK WESTPORT	
				APPROVED BY:		DRAWING TITLE: HIGHWAY PLAN	
				File name: ...\\VHW_MSH_0102-0368_PMT-05.dgn		PROJECT NO. 0102-0368	
						DRAWING NO. PMT-05	
						SHEET NO.	



1000 L.F. - MERRITT PARKWAY  
CONCRETE CURBING  
1000 L.F. - MERRITT PARKWAY GUIDERAIL  
1000 L.F. - REMOVE METAL BEAM RAIL

LEGEND

- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- RIPRAP FOR OUTLET APRONS/PREFORMED SCOUR HOLES AND SLOPE PROTECTION

OUTLET PROTECTION TABLE

STATION	OFFSET	RIPRAP SIZE	L	W	W	D
374+75	68' RT	MODIFIED	11'	6'	14'	12"

GENERAL NOTES

- PROPOSED FLOWS AND VELOCITIES ARE SHOWN ON PLANS WHERE OUTLET PROTECTION REHABILITATION IS PROPOSED IN WETLANDS.
- SLOPES 2:1 OR LESS SHALL RECEIVE CONSERVATION SEEDING FOR SLOPES AND TOPSOIL.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG CHECKED BY: NAI SCALE IN FEET 0 40 80 SCALE 1"=40'	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\HW...MSH_0102-0368_PMT-06.dgn	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b> DRAWING TITLE: <b>HIGHWAY PLAN</b>	PROJECT NO. <b>0102-0368</b> DRAWING NO. <b>PMT-06</b> SHEET NO.
------	------	----------------------	-----------	------------------------	---	--	--	---	---	--

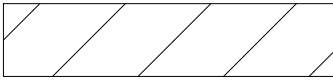


[illegible]


WATERCOURSE/WETLAND IMPACT TABLE

WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

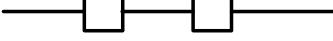
LEGEND



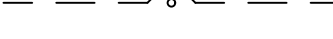
TEMPORARY WETLAND/WATERCOURSE IMPACT



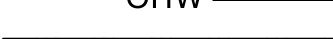
PERMANENT WETLAND/WATERCOURSE IMPACT




SEDIMENTATION CONTROL SYSTEM (SCS)



STATE/FEDERAL WETLANDS



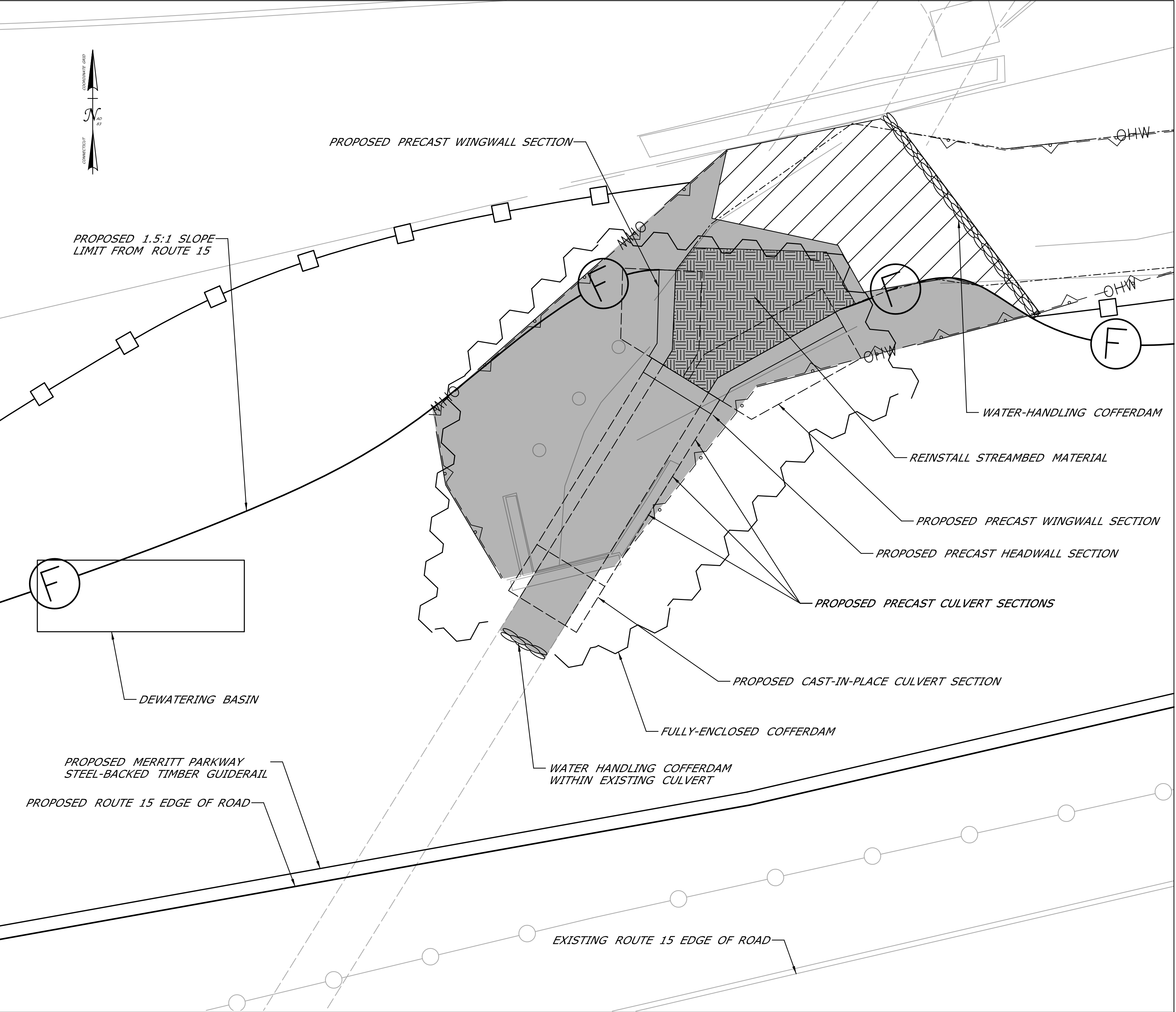
ORDINARY HIGH WATER (OHW)



NATURAL STREAMBED MATERIAL

GENERAL NOTES

1. THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.



WETLAND AREA 1: CULVERT EXTENSION  
WETLAND/WATERCOURSE IMPACT DETAIL

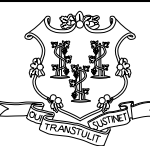
ENVIRONMENTAL PERMIT PLANS - 06/16/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/16/2020

DESIGNER/DRAFTER: WJPG

CHECKED BY: NAI

SCALE: 1" = 5'



STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW\_MSH\_0102-0368\_PMT-08.dgn

SIGNATURE/BLOCK: OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS

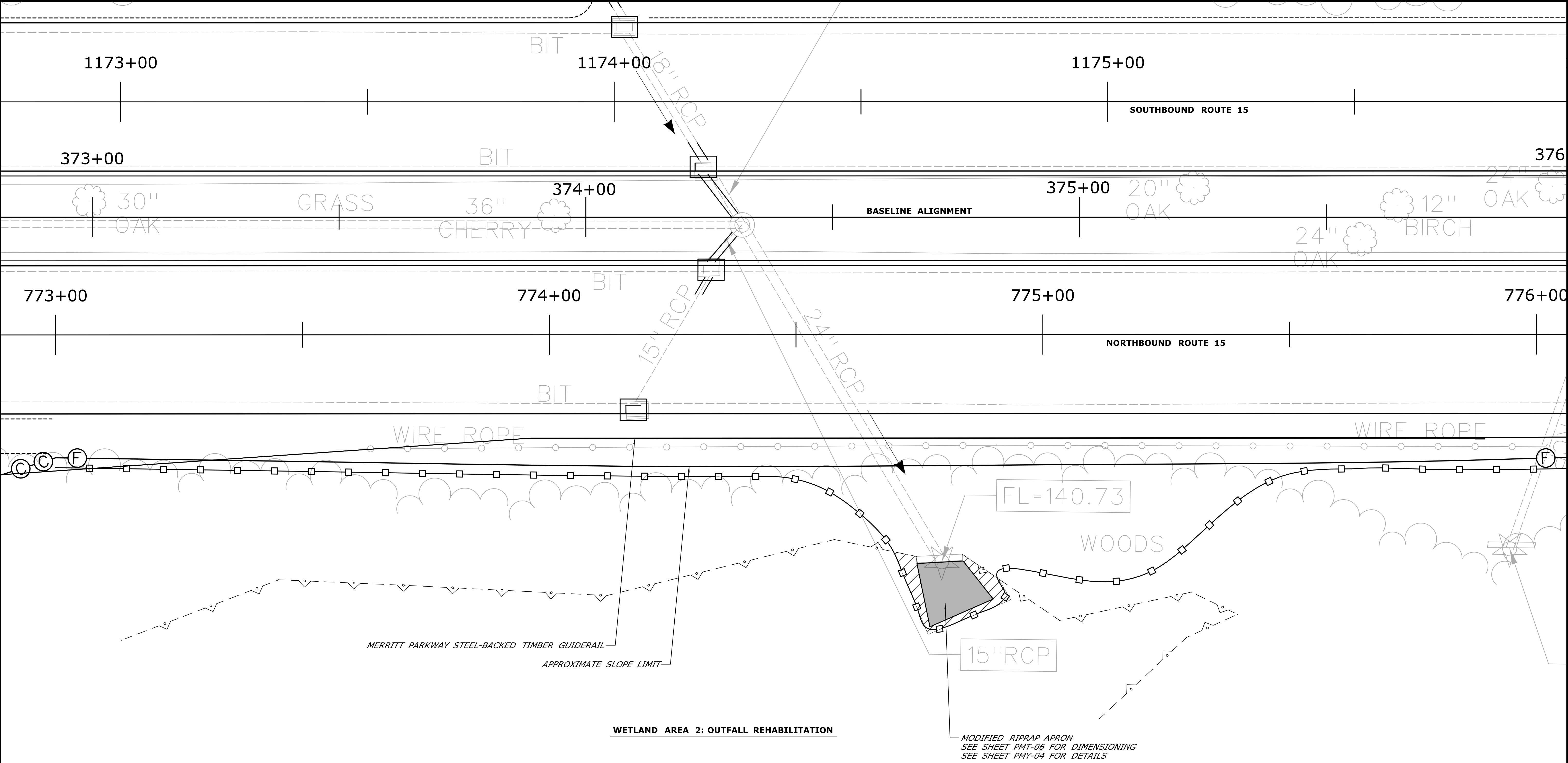
TOWN: NORWALK  
WESTPORT

DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN

PROJECT NO. 0102-0368

DRAWING NO. PMT-08

SHEET NO.



**LEGEND**

- TEMPORARY WETLAND/WATERCOURSE IMPACT
- PERMANENT WETLAND/WATERCOURSE IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- STATE/FEDERAL WETLANDS
- OHW — ORDINARY HIGH WATER (OHW)

WATERCOURSE/WETLAND IMPACT TABLE					
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

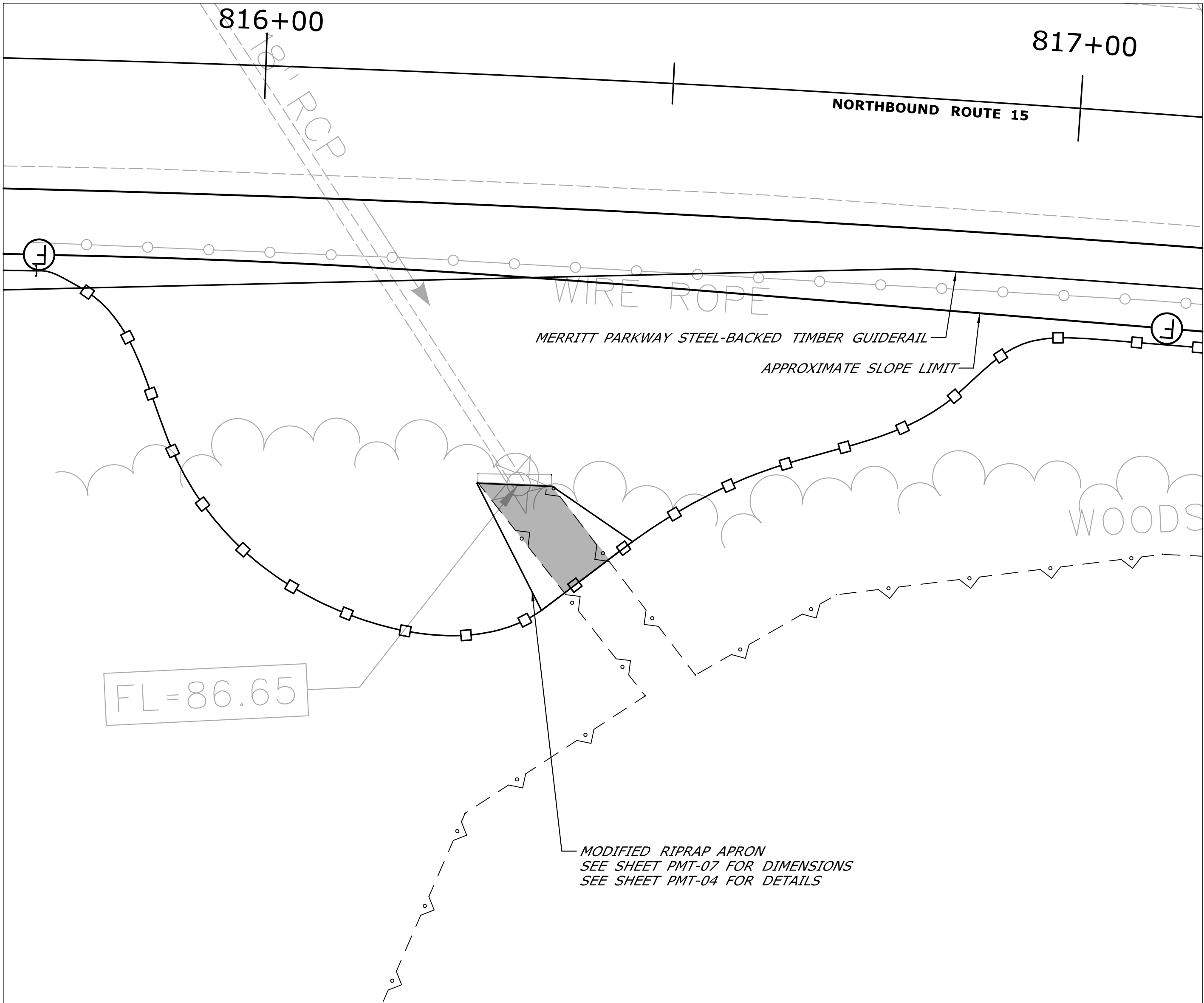
- GENERAL NOTES**
- THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
  - THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

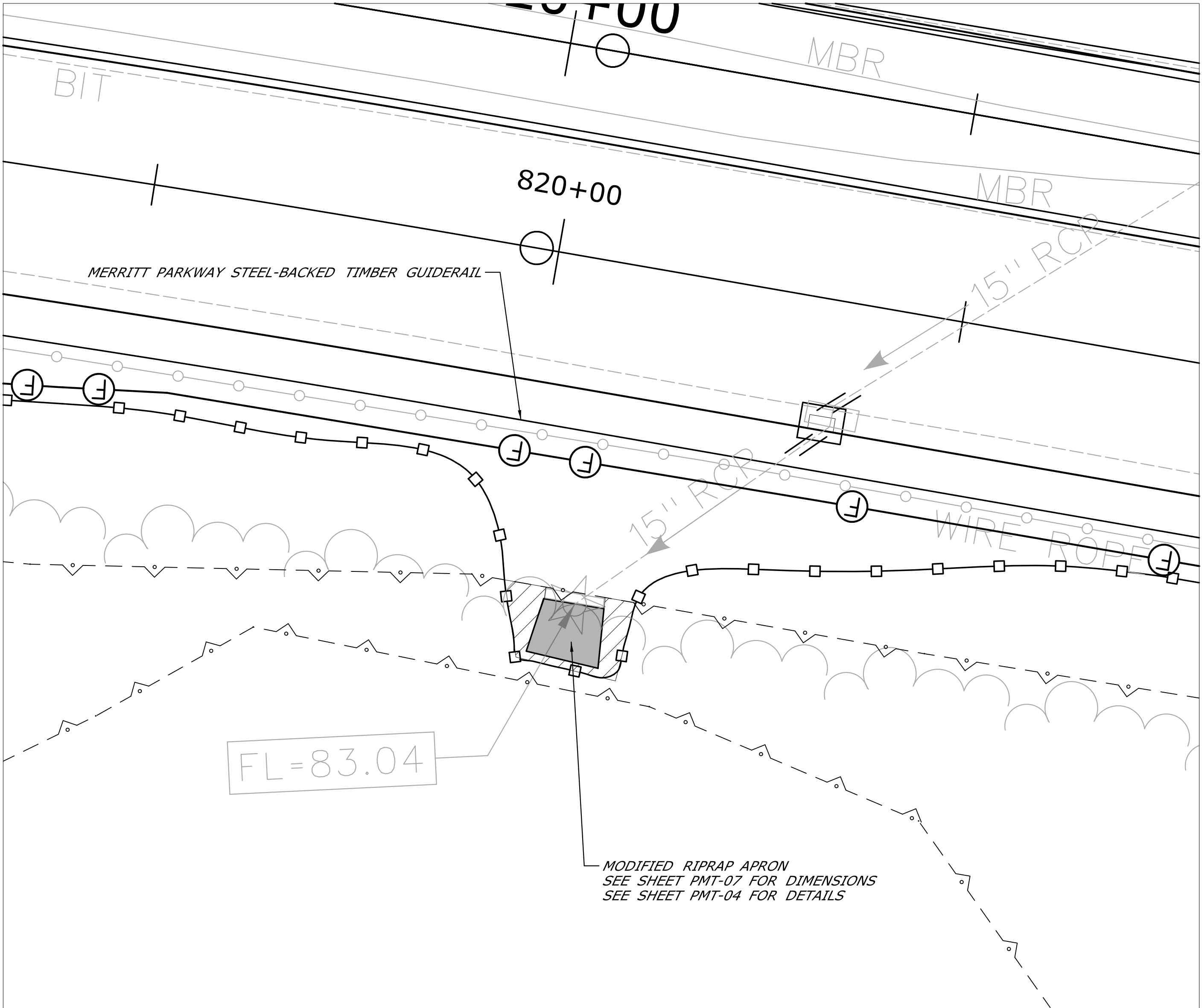
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/7/2020	DESIGNER/DRAFTER: WJPG	<b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY:	PROJECT TITLE: <b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b>	PROJECT NO. <b>0102-0368</b>
					CHECKED BY: NAI					DRAWING NO. <b>PMT-09</b>
					SCALE: 1" = 10'					SHEET NO.

Filename: ...\\HW\_MSH\_0102-0368\_PMT-09.dgn





WETLAND AREA 3: OUTFALL REHABILITATION



WETLAND AREA 4: OUTFALL REHABILITATION

LEGEND

TEMPORARY WETLAND/WATERCOURSE IMPACT

PERMANENT WETLAND/WATERCOURSE IMPACT

SEDIMENTATION CONTROL SYSTEM (SCS)

STATE/FEDERAL WETLANDS

OHW

ORDINARY HIGH WATER (OHW)

WATERCOURSE/WETLAND IMPACT TABLE					
WETLAND AREA #	WETLAND		WATERCOURSE		TOTAL
	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	
1	N/A	N/A	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	820 S.F. (0.019 AC.)
2	127 S.F. (0.003 AC.)	90 S.F. (0.002 AC.)	N/A	N/A	217 S.F. (0.005 AC.)
3	97 S.F. (0.002 AC.)	N/A	N/A	N/A	97 S.F. (0.002 AC.)
4	58 S.F. (0.001 AC.)	67 S.F. (0.002 AC.)	N/A	N/A	125 S.F. (0.003 AC.)
TOTAL	282 S.F. (0.006 AC.)	157 S.F. (0.004 AC.)	595 S.F. (0.014 AC.)	225 S.F. (0.005 AC.)	1259 S.F. (0.029 AC.)

- GENERAL NOTES
1.

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.
2.

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT TEHE NOTED REGULATED AREAS.

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.

DATE

REVISION DESCRIPTION

SHEET NO.

Plotted Date: 5/7/2020

DESIGNER/DRAFTER:  
WJPG

CHECKED BY:  
NAI

SCALE: 1" = 5'

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW...MSH\_0102-0368\_PMT-10.dgn

SIGNATURE/  
BLOCK:  
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:  
ROUTE 15 SAFETY IMPROVEMENTS,  
RESURFACING, ENHANCEMENTS,  
AND BRIDGE IMPROVEMENTS

TOWN:  
NORWALK  
WESTPORT

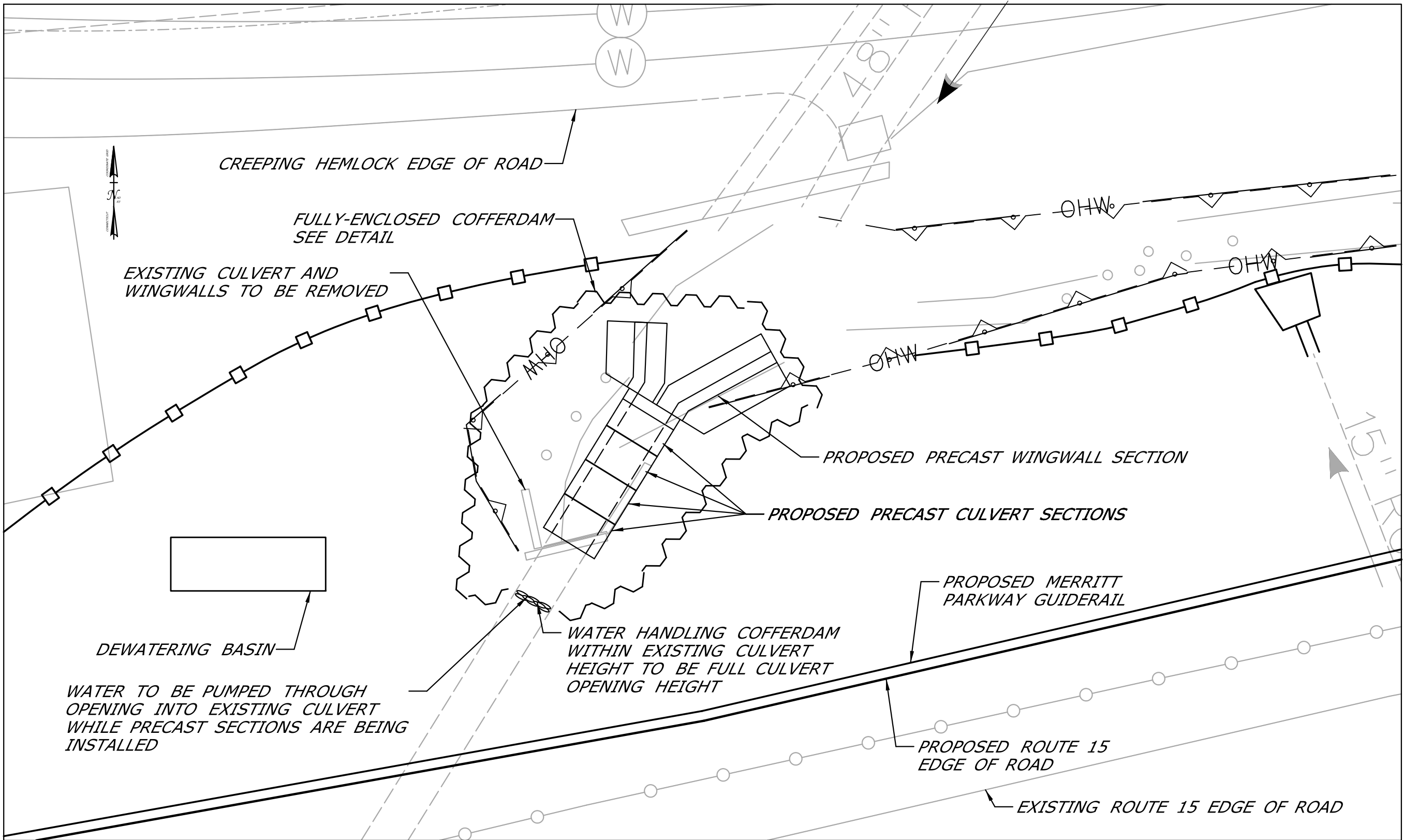
DRAWING TITLE:  
WETLAND/WATERCOURSE  
IMPACT PLAN

PROJECT NO.  
0102-0368

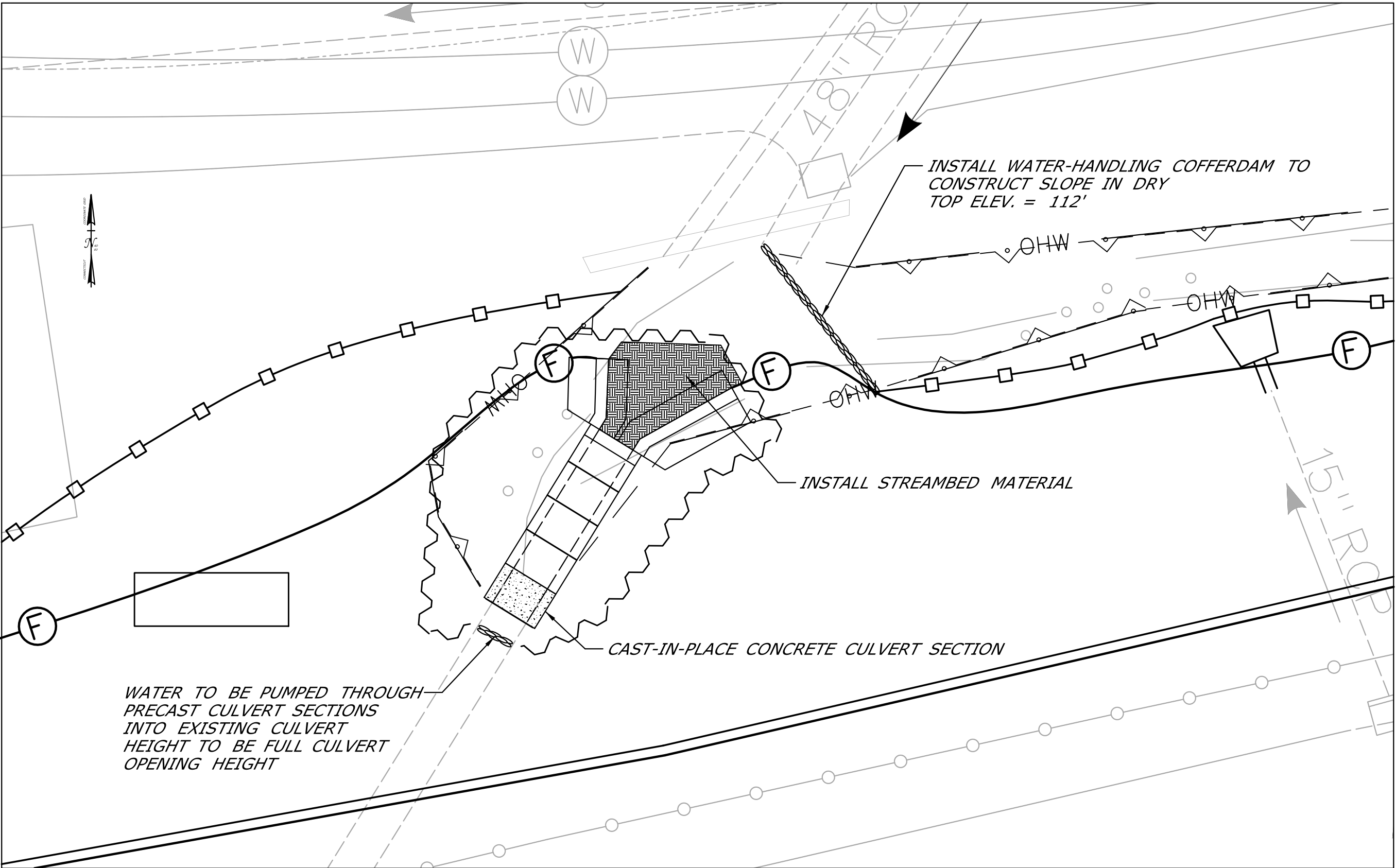
DRAWING NO.  
PMT-10

SHEET NO.

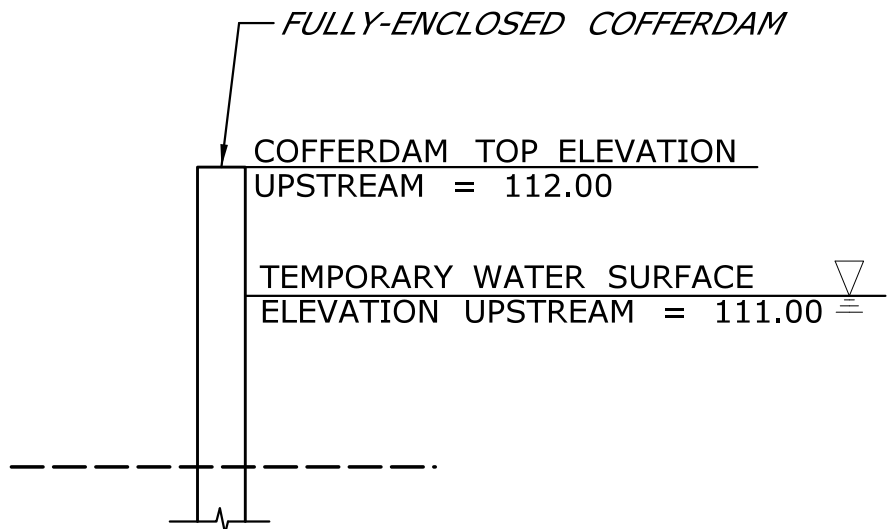




STAGE 1: INSTALL PRECAST CONCRETE CULVERT SECTIONS, WINGWALLS, AND HEADWALL



STAGE 2: INSTALL CAST-IN-PLACE CONCRETE CULVERT SECTION



COFFERDAM DETAIL

TEMPORARY HYDRAULIC DATA

AVERAGE DAILY FLOW	0.34 cfs
AVERAGE SPRING FLOW	0.66 cfs
2-YEAR FREQUENCY DISCHARGE	57 cfs
SHORT-TERM, LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 5 x AVG SPRING FLOW	4 cfs
GRAVITY FLOW BYPASS PIPE TEMPORARY DESIGN DISCHARGE = 5 x AVG SPRING FLOW	4 cfs
2-YEAR WATER SURFACE ELEVATION UPSTREAM	112 ft

SUGGESTED SEQUENCE OF CONSTRUCTION

- STAGE 1:
1. INSTALL SEDIMENTATION CONTROL SYSTEM (SCS).
  2. PERFORM CLEARING AND GRUBBING, AS NECESSARY. CONTROL OF INVASIVE SPECIES.
  3. INSTALL TEMPORARY DEWATERING BASIN. BASIN TO REMAIN THROUGH BOTH STAGES.
  4. INSTALL TEMPORARY WATER HANDLING SYSTEM INCLUDING FULLY-ENCLOSED WATER HANDLING COFFERDAMS AND PUMP. WATER HANDLING SYSTEM TO REMAIN THROUGH BOTH STAGES.
  5. SAWCUT AND REMOVE EXISTING HEADWALL AND WINGWALLS.
  6. INSTALL PRECAST CONCRETE CULVERT SECTIONS, WINGWALLS, AND HEADWALL.
- STAGE 2:
1. RELOCATE TEMPORARY PIPE OR PUMP THROUGH NEWLY INSTALLED PRECAST CONCRETE CULVERT SECTIONS. INSTALL TEMPORARY WATER-HANDLING COFFERDAM (SANDBAGS, AS SHOWN IN STAGE 2 DIAGRAM).
  2. INSTALL CAST-IN-PLACE CONCRETE CULVERT SECTION.
  3. REMOVE TEMPORARY WATER HANDLING SYSTEM. COFFERDAMS ARE TO BE CUT 1' BELOW GRADE AND LEFT IN PLACE. COMPLETE FINAL GRADING OF INLET PROTECTION.
  4. PERFORM FINAL GRADING, INSTALL NATURAL STREAMBED MATERIAL, RIPRAP, AND PLANTINGS/SEEDING.
  5. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

WATER HANDLING NOTES

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.
2. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY WATER HANDLING SYSTEM IS NOT IN PLACE WITHOUT APPROVAL FROM THE ENGINEER.
3. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
4. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.
5. ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
6. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND IMPACT SHEETS OF THE PERMIT PLANS.
7. IF A SHORT DURATION PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND HAVE A MINIMUM CAPACITY AS SHOWN IN THE TEMPORARY HYDRAULIC TABLE. PUMP SYSTEM PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS, THE ENGINEER MAY APPROVE A CONSTRUCTION WATER HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.

IN-WATER WORK RESTRICTIONS

1. UNCONFINED INSTREAM WORK IS RESTRICTED TO THE PERIOD OF JUNE 1ST THROUGH SEPTEMBER 30TH, INCLUSIVE.

ENVIRONMENTAL PERMIT PLANS - 06/16/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/16/2020	DESIGNER/DRAFTER: WJPG	CHECKED BY: NAI	SCALE: 1" = 10'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS	TOWN: NORWALK WESTPORT	PROJECT NO. 0102-0368
									APPROVED BY:		DRAWING TITLE: AREA 1 STAGING/ WATER HANDLING PLAN	DRAWING NO. PMT-11
											SHEET NO.	

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE PRECAST CONCRETE CULVERT SECTIONS AND CAST-IN-PLACE CONCRETE CULVERT SECTION INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OUTSIDE OF THE CONCRETE CULVERT TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

OPENNESS RATIO (OR):

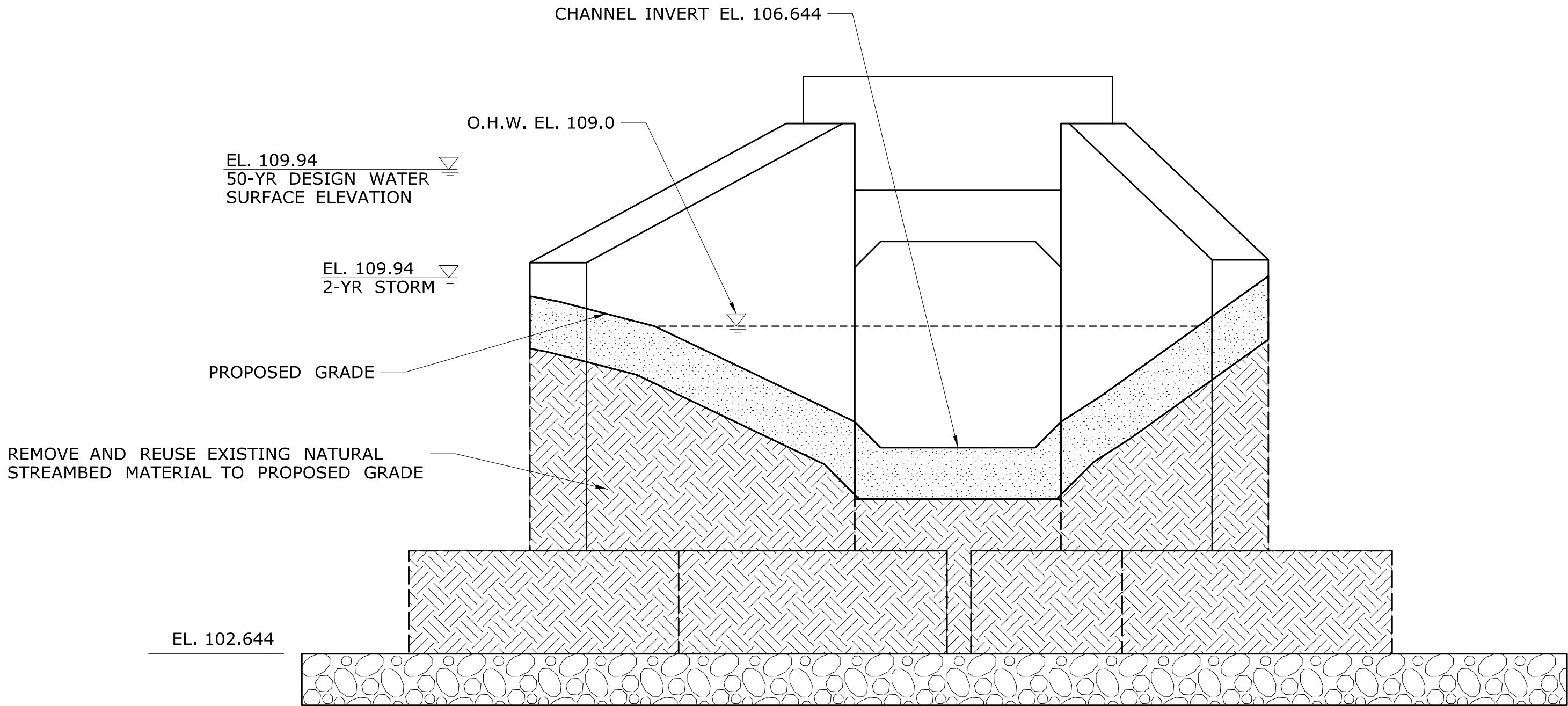
OR = OPEN AREA / CULVERT LENGTH  
OR = 15.5 S.F. / 234 FT. = 0.066 FT.  
0.066 < 0.82 FT. (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 15.85 FT UPSTREAM (OHW)  
1.2 X BFW = 19.02 FT.  
19.02 FT. > 4 FT. PROPOSED CULVER SPAN

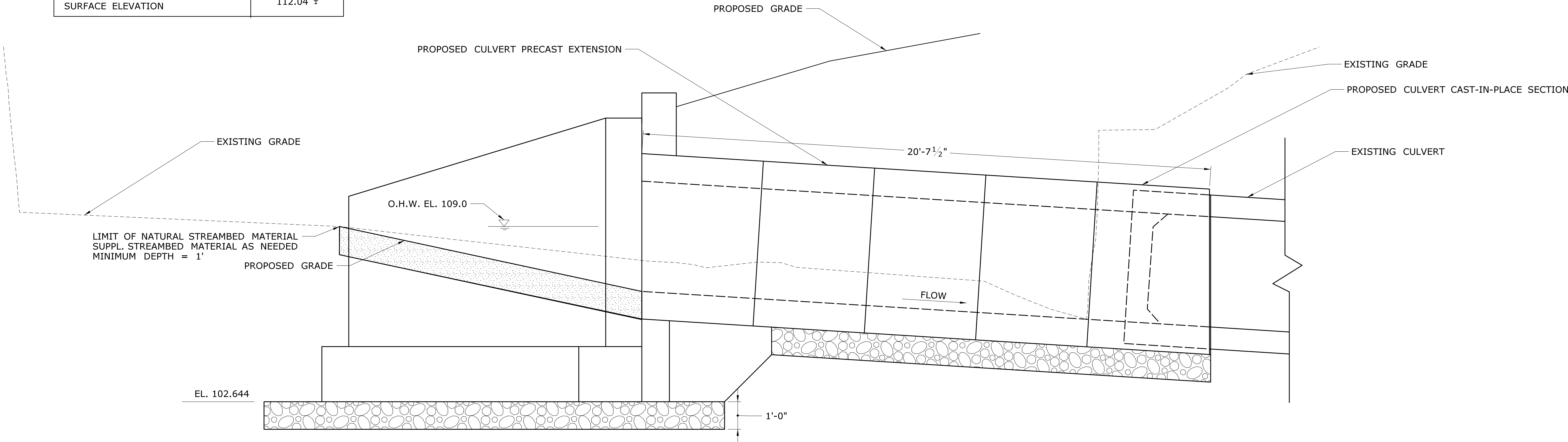
HYDRAULIC DATA

DRAINAGE AREA	0.178 SQ. MI.
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	140 CFS
AVERAGE DAILY FLOW ELEVATION	106.60 ±
50-YR UPSTREAM DESIGN WATER SURFACE ELEVATION	112.04 ±



INLET ELEVATION



SCALE: 1/2" = 1'-0"



CULVERT EXTENSION SECTION

SCALE: 1/2" = 1'-0"

ENVIRONMENTAL PERMIT PLANS - 05/05/20

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: AH	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>		SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b>	<b>ROUTE 15 SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS</b>	TOWN: <b>NORWALK WESTPORT</b>	PROJECT NO. <b>0102-0368</b>
					CHECKED BY: KP			APPROVED BY:		DRAWING TITLE: <b>AREA 1 ELEVATIONS AND SECTION</b>	DRAWING NO. <b>PMT-12</b>
											SHEET NO.
					Plotted Date: 5/20/2020						

Filename: ...\\HW..MSH..0102-0368..PMT-12.dgn

## **Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)**

### **Index**

1. Federal Highway Administration (FHWA) Form 1273 (Revised May 1, 2012)
2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
3. Contractor Work Force Utilization (Federal Executive Order 11246) / Specific Equal Employment Opportunity
4. Requirements of Title 49, CFR, Part 26, Participation by DBEs
5. Contract Wage Rates
6. Americans with Disabilities Act of 1990, as Amended
7. Connecticut Statutory Labor Requirements
  - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
  - b. Debarment List - Limitation on Awarding Contracts
  - c. Construction Safety and Health Course
  - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
  - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
9. Executive Orders (State of CT)
10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
11. Whistleblower Provision
12. Connecticut Freedom of Information Act
  - a. Disclosure of Records
  - b. Confidential Information
13. Service of Process
14. Substitution of Securities for Retainages on State Contracts and Subcontracts
15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
16. Forum and Choice of Law

17. Summary of State Ethics Laws
18. Audit and Inspection of Plants, Places of Business and Records
19. Campaign Contribution Restriction
20. Tangible Personal Property
21. Bid Rigging and/or Fraud – Notice to Contractor
22. Consulting Agreement Affidavit
23. Federal Cargo Preference Act Requirements (46 CFR 381.7(a)-(b))

**Index of Exhibits**

- EXHIBIT A – FHWA Form 1273 (Begins on page 14)
- EXHIBIT B – Title VI Contractor Assurances (page 34)
- EXHIBIT C – Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity (page 36)
- EXHIBIT D – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 43)
- EXHIBIT E – Campaign Contribution Restriction (page 51)
- EXHIBIT F – Federal Wage Rates (Attached at the end)
- EXHIBIT G – State Wage Rates and Other Related Information (Attached at the end)



### **1. Federal Highway Administration (FHWA) Form 1273**

The Contractor shall comply with the Federal Highway Administration (FHWA), Form 1273 attached at Exhibit A, as revised, which is hereby made part of this contract. The Contractor shall also require its subcontractors to comply with the FHWA – Form 1273 and include the FHWA – Form 1273 as an attachment to all subcontracts and purchase orders.

### **2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements**

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit B, all of which are hereby made a part of this Contract.

### **3. Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity**

- (a) The Contractor shall comply with the Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity requirements attached at Exhibit C and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

### **4. Requirements of Title 49, Code of Federal Regulations (CFR), Part 26, Participation by DBEs, as may be revised.**

Pursuant to 49 CFR 26.13, the following paragraph is part of this Contract and shall be included in each subcontract the Contractor enters into with a subcontractor:

“The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26, Participation by DBEs, in the award and administration of U.S. DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this contract or such other remedy as ConnDOT (recipient) deems appropriate, which may include, but is not limited to: (1) Withholding monthly progress payments, (2) Assessing sanctions, (3) Liquidated damages; and/or, (4) Disqualifying the contractor from future bidding as non-responsible.”

## **5. Contract Wage Rates**

The Contractor shall comply with:

The Federal and State wage rate requirements indicated in Exhibits F and G hereof, as revised, are hereby made part of this Contract. The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. These applicable Federal wage rates will be physically incorporated in the final contract document executed by both parties. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents, prior to the bid opening date. During the bid advertisement period, bidders are responsible for obtaining the appropriate Federal wage rates from the US Department of Labor website.

To obtain the latest Federal wage rates go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose "Selecting DBA WDs" and follow the instruction to search the latest wage rates for the State, County and Construction Type. Refer to the Notice to Contractor (NTC) - Federal Wage Determinations (Davis Bacon Act).

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by Section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 817), as may be revised, every Contractor or subcontractor performing project work on a Federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

## **6. Americans with Disabilities Act of 1990, as Amended**

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

## **7. Connecticut Statutory Labor Requirements**

**(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates.** The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or

worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

**(b) Debarment List. Limitation on Awarding Contracts.** The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

**(c) Construction Safety and Health Course.** The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

**(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited.** The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

**(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS.** Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

## **8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)**

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is

responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at [www.ct.gov/DRS](http://www.ct.gov/DRS) to download and print Connecticut tax forms; or  
Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

## 9. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

**10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.**

(a) For purposes of this Section, the following terms are defined as follows:

- (1) "Commission" means the Commission on Human Rights and Opportunities;
- (2) "Contract" and "contract" include any extension or modification of the Contract or contract;
- (3) "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- (4) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.
- (5) "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- (6) "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted



efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;

- (7) "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;
- (8) "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- (9) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- (10) "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the State of Connecticut, including, but not limited to municipalities, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state of the United States, including but not limited to, the District of Columbia, Puerto Rico, U.S. territories and possessions, and federally recognized Indian tribal governments, as defined in Connecticut General Statutes § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3), or (4) of this subsection.

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor

agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.
- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.
- (g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.
- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by

regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

Please be aware the Nondiscrimination Certifications can be found at the Office of Policy and Management website:

<https://portal.ct.gov/OPM/Fin-PSA/Forms/Nondiscrimination-Certification>

## **11. Whistleblower Provision**

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

**Whistleblowing.** This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

## **12. Connecticut Freedom of Information Act**

**(a) Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.

**(b) Confidential Information.** The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular

sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

### **13. Service of Process**

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

### **14. Substitution of Securities for Retainages on State Contracts and Subcontracts**

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

### **15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)**

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit D, and hereby made part of this Contract.

### **16. Forum and Choice of Law**

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of

Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

## **17. Summary of State Ethics Laws**

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

## **18. Audit and Inspection of Plants, Places of Business and Records**

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

## **19. Campaign Contribution Restriction**

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State

Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit E.

## **20. Tangible Personal Property**

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
  - (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
  - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
  - (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
  - (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

## **21. Bid Rigging and/or Fraud – Notice to Contractor**

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during

normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

## **22. Consulting Agreement Affidavit**

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in the information contained in the form, a contractor shall submit the updated form, as applicable, either (i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

## **23. Cargo Preference Act Requirements (46 CFR 381.7(a)-(b)) – Use of United States Flag Vessels**

The Contractor agrees to comply with the following:

### **(a) *Agreement Clauses.***

- (1) Pursuant to Pub. L. 664 ([43 U.S.C. 1241\(b\)](#)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.
- (2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

### **(b) *Contractor and Subcontractor Clauses.*** The contractor agrees—

- (1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- (2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- (3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

## **EXHIBIT A**

FHWA-1273 -- Revised May 1, 2012

### **REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

#### **I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.



3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

## **II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

## **6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26, and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26, in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### **III. NONSEGREGATED FACILITIES**

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for

employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

#### **IV. DAVIS-BACON AND RELATED ACT PROVISIONS**

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

##### **1. Minimum wages**

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## **2. Withholding**

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same

prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

### **3. Payrolls and basic records**

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:



(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### **4. Apprentices and trainees**

##### **a. Apprentices (programs of the USDOL).**

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise

employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be

performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## **VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

#### **VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

## **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

## **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

### **1. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*



**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and

1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

#### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

## **XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

## EXHIBIT B

### TITLE VI CONTRACTOR ASSURANCES APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Regulations relative to Nondiscrimination in Federally-assisted programs of the United States Department of Transportation Federal Highway Administration and Federal Transit Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income or Limited English Proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration or Federal Transit Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to the Recipient or the Federal Highway Administration or the Federal Transit Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration or the Federal Transit Administration may determine to be appropriate, including, but not limited to:

- a. withholding contract payments to the contractor under the contract until the contractor complies; and/or
- b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration or the Federal Transit Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with, litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

## TITLE VI CONTRACTOR ASSURANCES APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. § 2000d et seq.), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 et seq. and 49 C.F.R. part 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 et seq.) (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794 et seq.) (prohibits discrimination on the basis of disability); and 49 C.F.R. part 27;
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (Pub. L. 97-248 (1982)), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (102 Stat. 28) ("*... which restore[d] the broad scope of coverage and to clarify the application of Title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and Title VI of the Civil Rights Act of 1964.*");
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 --12189), as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681 et seq).

## **EXHIBIT C**

### **CONTRACTOR WORKFORCE UTILIZATION (FEDERAL EXECUTIVE ORDER 11246) / EQUAL EMPLOYMENT OPPORTUNITY (Federal - FHWA)**

#### **1. Project Workforce Utilization Goals:**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the attached Appendix A.

#### **2. Executive Order 11246**

The Contractor's compliance with Executive Order 11246 and 41-CFR Part 60-4 shall be based on its implementation of the specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(A) and its efforts to meet the goals established for the geographical area where the contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hour performed.

If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.

Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Pan does not excuse any covered Contractor's of subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

The Contractor shall implement the specific affirmative action standards provided in a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs (OFCCP) Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractors obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant hereto.

In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites; and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community

organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter; along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the Union or Unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the Union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO Policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company EEO Policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment, decisions including specific Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO Policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor



shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.

- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work-force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (a through p). The efforts of a contractor association, joint contractor union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work-force participation, makes a good faith effort to meet with individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of Executive Order 11246 if a particular group is employed in a substantially disparate manner, (for example, even though the

Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g. mechanic, apprentice, trainee, helper, or laborer) dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

Nothing herein provided shall be construed as a limitation upon the application of their laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

The Director of the Office of Federal Contract Compliance Programs, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate work-force, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or timetables, shall be published as notices in the Federal Register, and shall be inserted by the Contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2.

**FEDERALLY FUNDED OR ASSISTED PROJECTS**  
**APPENDIX A**  
**(Labor Market Goals)**

**Standard Metropolitan Statistical Area (SMSA)**

**Female**

**Minority**

<b>Bridgeport – Stamford – Norwalk – Danbury</b>				<b>10.2%</b>
<b>6.9%</b>				

Bethel	Bridgeport	Brookfield	Danbury
Darien	Derby	Easton	Fairfield
Greenwich	Milford	Monroe	New Canaan
New Fairfield	Newton	Norwalk	Redding
Shelton	Stamford	Stratford	Trumbull
Weston	Westport	Wilton	

<b>Hartford – Bristol – New Britain</b>				<b>6.9%</b>
<b>6.9%</b>				

Andover	Avon	Berlin	Bloomfield
Bolton	Bristol	Burlington	Canton
Colchester	Columbia	Coventry	Cromwell
East Granby	East Hampton	East Hartford	East Windsor
Ellington	Enfield	Farmington	Glastonbury
Granby	Hartford	Hebron	Manchester
Marlborough	New Britain	New Hartford	Newington
Plainville	Plymouth	Portland	Rocky Hill
Simsbury	South Windsor	Southington	Stafford
Suffield	Tolland	Vernon	West Hartford
Wethersfield	Willington	Windsor	Windsor Locks

<b>New Haven – Waterbury – Meriden</b>				<b>9.0%</b>
<b>6.9%</b>				

Beacon Falls	Bethany	Branford	Cheshire
Clinton	East Haven	Guilford	Hamden
Madison	Meriden	Middlebury	Naugatuck
New Haven	North Branford	North Haven	Orange
Prospect	Southbury	Thomaston	Wallingford
Waterbury	Watertown	West Haven	Wolcott
Woodbridge	Woodbury		

<b>New London – Norwich</b>				<b>4.5%</b>
<b>6.9%</b>				

Bozrah	East Lyme	Griswold	Groton
Ledyard	Lisbon	Montville	New London

Norwich  
Sprague

Old Lyme  
Stonington

Old Saybrook  
Waterford

Preston

**Non SMSA**

**Female**

**Minority**

**Litchfield – Windham**

**5.9%**

**6.9%**

Abington	Ashford	Ballouville	Bantam
Barkhamsted	Bethlehem	Bridgewater	Brooklyn
Canaan	Canterbury	Central Village	Cahplin
Colebrook	Cornwall	Cornwall Bridge	Danielson
Dayville	East Canaan	East Killingly	East Woodstock
Eastford	Falls Village	Gaylordsville	Goshen
Grosvenor Dale	Hampton	Harwinton	Kent
Killigly	Lakeside	Litchfield	Moosup
Morris	New Milford	New Preston	New Preston Marble Dale
Norfolk	North Canaan	No. Grosvenordale	North Windham
Oneco	Pequabuck	Pine Meadow	Plainfield
Pleasant Valley	Pomfret	Pomfret Center	Putnam
Quinebaug	Riverton	Rogers	Roxbury
Salisbury	Scotland	Sharon	South Kent
South Woodstock	Sterling	Taconic	Terryville
Thompson	Torrington	Warren	Warrenville
Washington	Washington Depot	Wauregan	West Cornwall
Willimantic	Winchester	Winchester Center	Windham
Winsted	Woodstock	Woodstock Valley	

## **EXHIBIT D**

### **Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).**

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
  - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
  - (2) “Business Associate” shall mean the Contractor.
  - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
  - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
  - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
  - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
  - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
  - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
  - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
  - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
  - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
  - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
  - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
  - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. § 17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
  - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
  - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.

- (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.
- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.

- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.
- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations
- (16) Obligations in the Event of a Breach
  - A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
  - B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
  - C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
    - 1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
    - 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
    - 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.



4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
  5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.
- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
- E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
  - (2) Specific Use and Disclosure Provisions
    - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
    - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or

for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).

(j) Obligations of Covered Entity.

(1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.

(2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.

(3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.

(k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.

(l) Term and Termination.

(1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.

(2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:

(A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or

(B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or

- (C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.

(3) Effect of Termination

- (A) Except as provided in (1)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.
- (B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

- (1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.
- (2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.
- (3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.
- (4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.
- (5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.

(6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

**Notice to Executive Branch State Contractors and Prospective State  
 Contractors of Campaign Contribution and Solicitation Limitations**

This notice is provided under the authority of Connecticut General Statutes §9-612 (f) (2) and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined on the reverse side of this page).

**CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS**

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract or state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder, of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor or principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

**DUTY TO INFORM**

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

**PENALTIES FOR VIOLATIONS**

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

**Civil penalties**—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

**Criminal penalties**—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

**CONTRACT CONSEQUENCES**

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, [www.ct.gov/seec](http://www.ct.gov/seec). Click on the link to "Lobbyist/Contractor Limitations."

## DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fundraising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee, serving on the committee that is hosting a fundraising event, introducing the candidate or making other public remarks at a fundraising event, being honored or otherwise recognized at a fundraising event, or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor’s state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age

or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

## **EXHIBIT F**

(Federal wage rate package will be inserted at the end after State wages for the final executed contract only. Refer to NTC – Federal Wage Determinations)

## **EXHIBIT G**

### **State Wages and Other Related Information**

Please refer to the Department of Labor website for the latest updates, annual adjusted wage rate increases, certified payroll forms and applicable statutes.

<http://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm>

### **Prevailing Wage Law Poster Language**

**THIS IS A PUBLIC WORKS PROJECT Covered by the  
PREVAILING WAGE LAW CT General Statutes Section 31-53**

**If you have QUESTIONS regarding your wages CALL (860) 263-6790**

**Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.**

### **Informational Bulletin**

**THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE** (applicable to public building contracts entered into on or after July 1, 2007, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is [http://www.osha.gov/fso/ote/training/edcenters/fact\\_sheet.html](http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html);
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;



- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a bona fide student course completion card issued by the federal OSHA Training Institute; or (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;
- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgmenu.htm>; or by telephone at (860)263-6790.

**THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.**

November 29, 2006

## **Notice**

### **To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)**

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute. Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute. The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

#### **Forklift Operator:**

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

**Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.**

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

**CONNECTICUT DEPARTMENT OF LABOR  
WAGE AND WORKPLACE STANDARDS DIVISION**

**CONTRACTORS WAGE CERTIFICATION FORM  
Construction Manager at Risk/General Contractor/Prime Contractor**

I, \_\_\_\_\_ of \_\_\_\_\_  
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the \_\_\_\_\_  
Company Name

\_\_\_\_\_  
Street

\_\_\_\_\_  
City

and all of its subcontractors will pay all workers on the

\_\_\_\_\_  
Project Name and Number

\_\_\_\_\_  
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

\_\_\_\_\_  
Signed

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

Return to: Connecticut Department of Labor  
Wage & Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

Rate Schedule Issued (Date): \_\_\_\_\_

## **Information Bulletin** ***Occupational Classifications***

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

*Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.*

**Below are additional clarifications of specific job duties performed for certain classifications:**

□ **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

□ **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

□ **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

□ **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

□ **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular

furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

□ **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

□ **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

□ **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. \*License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.

□ **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. \*License required by Connecticut General Statutes: R-1, 2, 5, 6.

□ **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

□ **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and

curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

□ **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

□ **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

□ **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

□ **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

□ **LEAD PAINT REMOVAL**

- Painter's Rate 1. Removal of lead paint from bridges. 2. Removal of lead paint as preparation of any surface to be repainted. 3. Where removal is on a Demolition project prior to reconstruction. • Laborer's Rate 1. Removal of lead paint from any surface NOT to be repainted. 2. Where removal is on a TOTAL Demolition project only.

□ **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. \*License required per Connecticut General Statutes: P-1,2,6,7,8,9 J1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.

## □ **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. **\*License required, crane operators only, per Connecticut General Statutes.**

## □ **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

## □ **SHEETMETAL WORKERS**

Fabricate, assemble, install and repair sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

## □ **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems. **\*License required per Connecticut General Statutes: F-1, 2, 3, 4.**

## □ **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

## □ **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are required to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance

of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. **\*License required, drivers only, per Connecticut General Statutes.**

**For example:**

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

☐ Any questions regarding the proper classification should be directed to:

**Public Contract Compliance Unit  
Wage and Workplace Standards Division  
Connecticut Department of Labor  
200 Folly Brook Blvd, Wethersfield, CT 06109  
(860) 263-6543.**



**Connecticut Department of Labor  
Wage and Workplace Standards Division  
FOOTNOTES**

□ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

**Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons**  
(Building Construction) and (Residential- Hartford, Middlesex, New Haven, New London and  
Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

**Elevator Constructors: Mechanics**

a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

**Glaziers**

a. Paid Holidays: Labor Day and Christmas Day.

**Power Equipment Operators**  
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

**Ironworkers**

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

**Laborers (Tunnel Construction)**

a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he

fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

**Roofers**

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

**Sprinkler Fitters**

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

**Truck Drivers**

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Rev. 7/1/19

**SEE BELOW FOR STATE WAGE RATES**

**INSERT STATE WAGES HERE**

**Minimum Rates and Classifications for  
Heavy/Highway Construction**

ID# 20-15426

**Connecticut Department of Labor  
Wage and Workplace Standards**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay

Project Number: #0102-0368

Project Town: Norwalk

State#: #0102-0368

FAP#: #0015 (145)

Project: CT DOT Route 15 Safety Improvements (Norwalk)

<b>CLASSIFICATION</b>	<b>Hourly</b>	<b>Benefits</b>
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	35.72	33.16
2) Carpenters, Piledrivermen	34.53	25.64
2a) Diver Tenders	34.53	25.64
3) Divers	42.99	25.64
03a) Millwrights	34.94	26.19
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	52.25	22.55
4a) Painters: Brush and Roller	35.62	22.55
4b) Painters: Spray Only	38.62	22.55
4c) Painters: Steel Only	37.62	22.55
4d) Painters: Blast and Spray	38.62	22.55
4e) Painters: Tanks, Tower and Swing	37.62	22.55

Project: CT DOT Route 15 Safety Improvements (Norwalk)

5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	39.92	28.75+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	37.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	44.63	32.95
----LABORERS-----		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.0	22.15
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.25	22.15
10) Group 3: Pipelayers	31.5	22.15
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	31.5	22.15
12) Group 5: Toxic waste removal (non-mechanical systems)	33.0	22.15
13) Group 6: Blasters	32.75	22.15
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.0	22.15
Group 8: Traffic control signalmen	18.0	22.15
Group 9: Hydraulic Drills	29.3	18.90
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	33.23	22.15 + a
13b) Brakemen, Trackmen	32.26	22.15 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		

14) Concrete Workers, Form Movers, and Strippers	32.26	22.15 + a
15) Form Erectors	32.59	22.15 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.26	22.15 + a
17) Laborers Topside, Cage Tenders, Bellman	32.15	22.15 + a
18) Miners	33.23	22.15 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	39.72	22.15 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	39.52	22.15 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	37.54	22.15 + a
21) Mucking Machine Operator	40.31	22.15 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	29.86	25.79 + a
Three axle trucks; two axle ready mix	29.97	25.79 + a
Three axle ready mix	30.03	25.79 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	30.08	25.79 + a
Four axle ready-mix	30.13	25.79 + a
Heavy duty trailer (40 tons and over)	30.35	25.79 + a

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.13	25.79 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	42.45	25.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	42.11	25.30 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	41.32	25.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	40.91	25.30 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24	40.28	25.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	40.28	25.30 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	39.95	25.30 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	39.59	25.30 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	39.17	25.30 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	38.71	25.30 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	36.54	25.30 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	36.54	25.30 + a

Group 12: Wellpoint Operator.	36.48	25.30 + a
Group 13: Compressor Battery Operator.	35.86	25.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	34.66	25.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	34.23	25.30 + a
Group 16: Maintenance Engineer/Oiler	33.54	25.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	38.11	25.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	35.53	25.30 + a

**\*\*NOTE: SEE BELOW**

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)---

-

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76

----LINE CONSTRUCTION----

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.1	6.5% + 10.70



Project: CT DOT Route 15 Safety Improvements (Norwalk)

27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
<hr/>		
28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45
<hr/>		

Project: CT DOT Route 15 Safety Improvements (Norwalk)

Welders: Rate for craft to which welding is incidental.

\*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

**ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:**

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)**
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson**

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work

--Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing

*The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.*

*Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.*

*It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.*

*The annual adjustments will be posted on the Department of Labor's Web page: [www.ct.gov/dol](http://www.ct.gov/dol). For those without internet access, please contact the division listed below.*

*The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.*

*All subsequent annual adjustments will be posted on our Web Site for contractor access.*

*Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.*

**Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage**

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

**As of:** September 9, 2020

Project: CT DOT Route 15 Safety Improvements (Norwalk)

**~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).**

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

**As of:** September 9, 2020